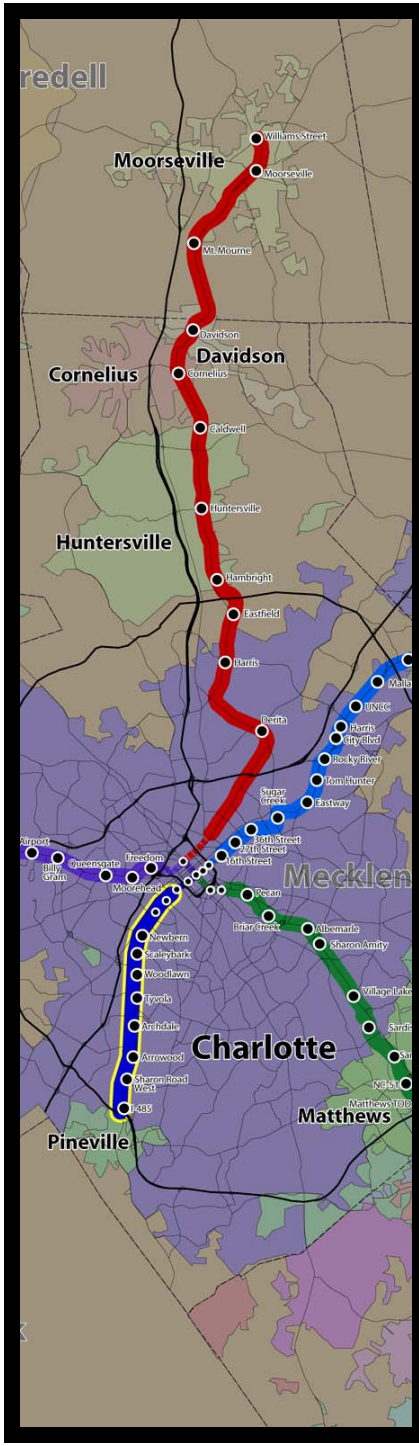
Transportation Design for Communities

Hosted by the Center for Quality Growth and Regional Development at the Georgia Institute of Technology

Lunch Presentation: The Long-View - Integrating Land Use & Transit – A Story from Charlotte, N.C.

May 12, 2006 Atlanta, GA

Presenter: Troy Russ, AICP, Principal – Glatting Jackson Kercher Anglin Lopez Rinehart, Inc.



Transportation Design for Communities

Executive Seminar

TAKING THE LONG VIEW

Integrating Land Use & Transit

Prepared by:

TROY RUSS, AICP

Principal, Glatting Jackson

Georgia Institute of Technology

Center for Quality Growth &Regional Development

May 12, 2006


TRANSIT PILL? NO THANKS... I'LL JUST LIVE WITH THE CARS A WHILE LONGER.
POWELL
6/24/97
U.S.

One Man’s Journey to Transit

One Man’s Journey to Transit

One Man’s Journey to Transit

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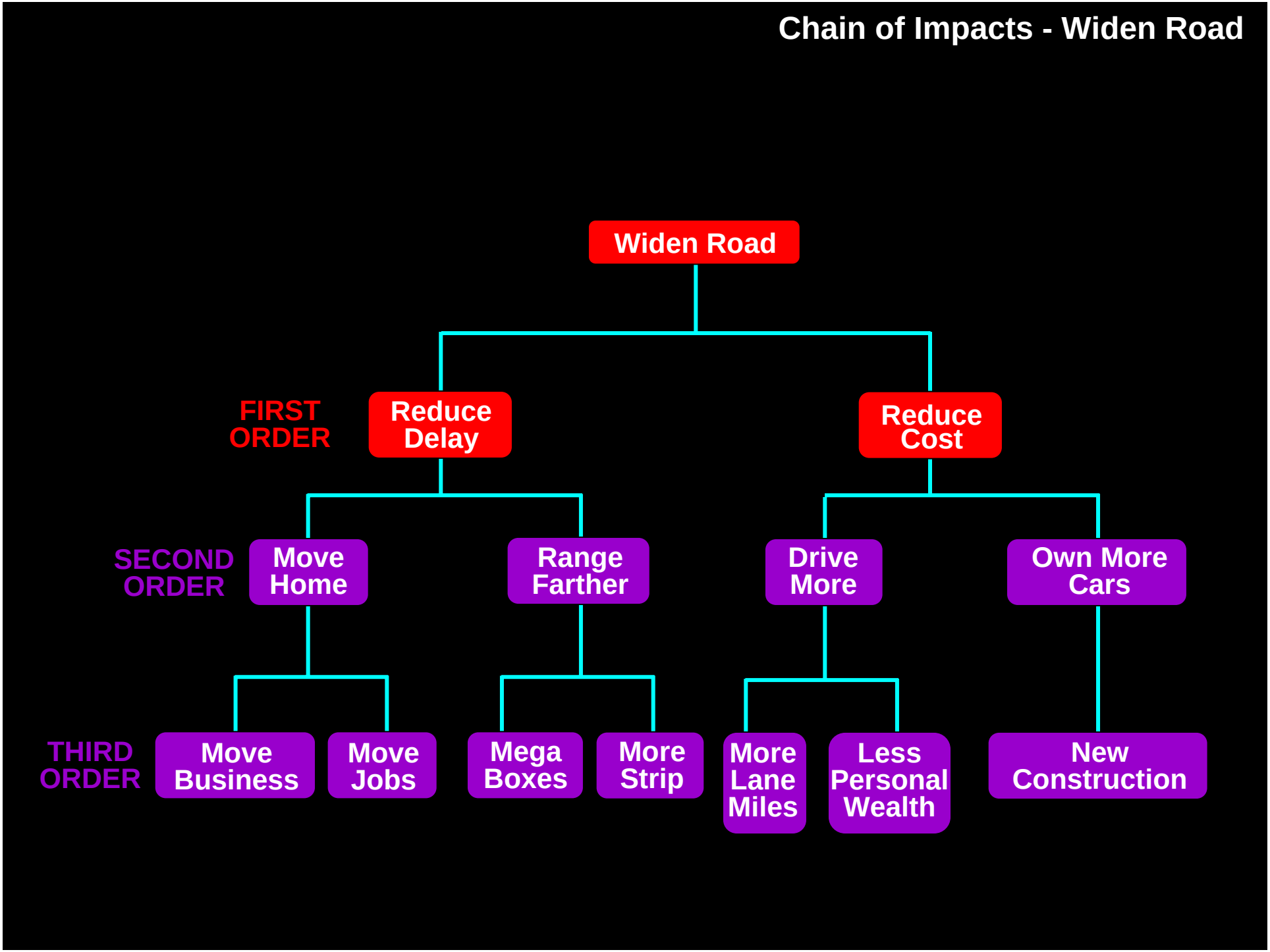
Chain of Impacts - Widen Road



The

Statistic

Increasing demand for the automobile

	1983	1990	1995	1983 - 1995 % change
Average Work Trip Length (Miles)	8.5	10.6	11.6	**36.5**
Average Work Travel Time (Minutes)	18.2	19.7	20.7	**13.7**
Average Work Trip Speed (MPH)	28	32.3	33.6	**20**

Source:1995 NPTS: Federal Highway Administration

Commute Times within the Orlando MSA

	1990	2000
Total:	**557,448**	786,243
Less Than 10 minutes	11%	9%
10 to 29 minutes	53%	49%
30 to 60 minutes	30%	34%
60 of more minutes	3%	6%
Worked at home	2%	3%
Total	**100%**	100%

Source:U.S. Census Bureau 1990 & 2000 Census

Journey to Work - Orlando MSA

	1990	2000
Total:	**557,448**	**786,243**
Car, truck, or van:	**91.3%**	**92.7%**
Drove alone	78.1%	80.6%
Carpooled	13.3%	12.1%
Public transportation:	**1.5%**	**1.7%**
Bus or trolley bus	1.4%	1.6%
Streetcar or trolley car (público in Puerto Rico)	0.0%	0.0%
Subway or elevated	0.0%	0.0%
Railroad	0.0%	0.0%
Ferryboat	0.0%	0.0%
Taxicab	0.1%	0.1%
Motorcycle	**0.4%**	**0.2%**
Bicycle	**0.6%**	**0.4%**
Walked	**3.5%**	**1.3%**
Other means	**0.7%**	**0.8%**
Worked at home	**2.0%**	**2.9%**

Source:U.S. Census Bureau 1990 & 2000 Census

Vehicles per household

	1969		1995	
0 car households	21%	68%	8%	39%
1 car households	48%		31%	
2 car households	27%	32%	41%	61%
3 car households	5%		20%	

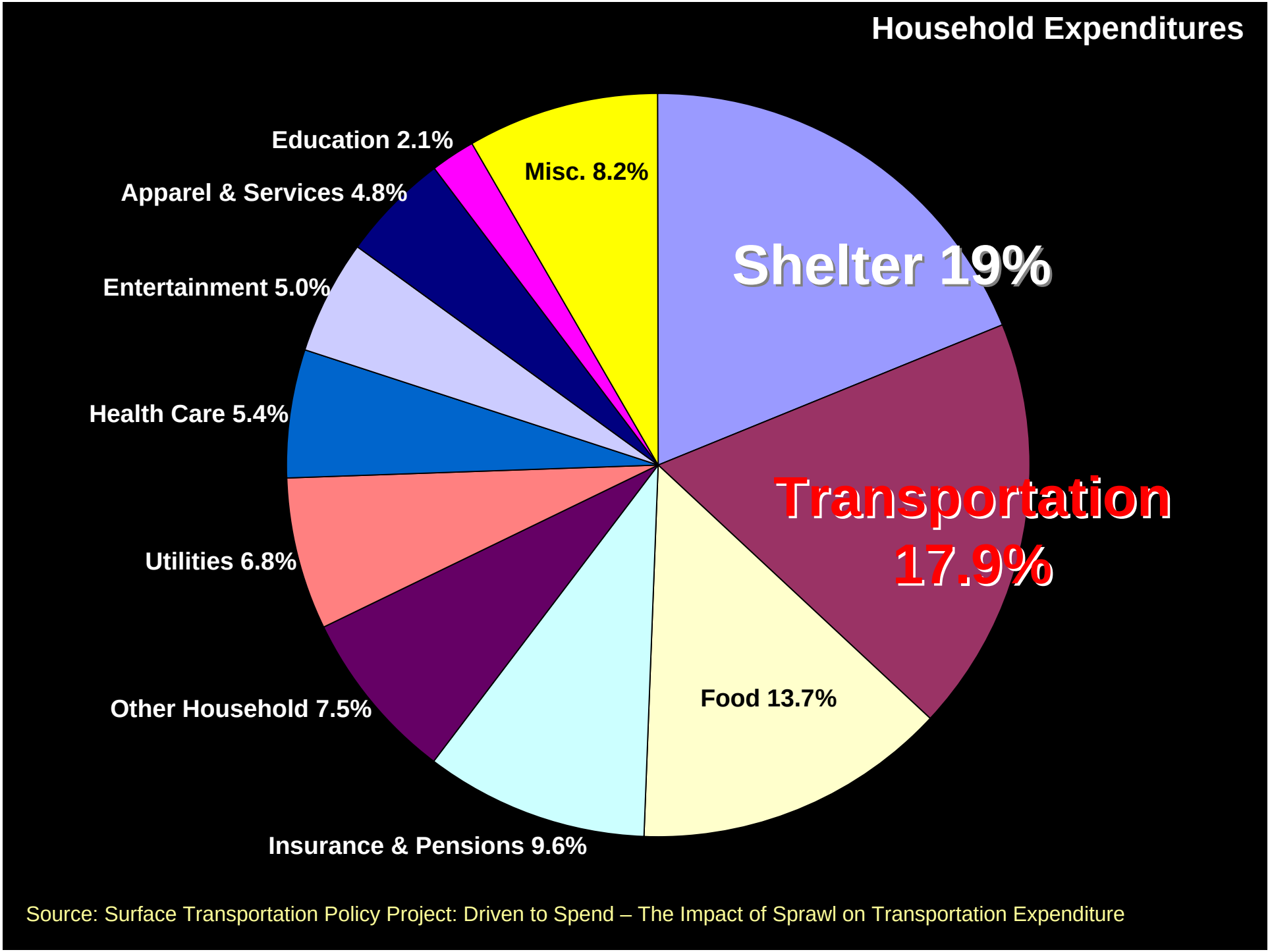
	1990
Average number of cars per household	1.8

Source:1995 NPTS: Federal Highway Administration

ANNUAL DRIVING COST ESTIMATES

YEAR	COST PER YEAR	COST PER MILE
2002	$7,533	50.2 cents
2001	$7,654	51.0 cents
2000	$7,363	49.1 cents
1999	$7,050	47.0 cents
1998	$6,908	46.1 cents
1997	$6,723	44.8 cents
1996	$6,389	42.6 cents
1995	$6,185	41.2 cents
1994	$5,916	39.4 cents
1993	$5,804	38.7 cents
1992	$5,824	38.8 cents

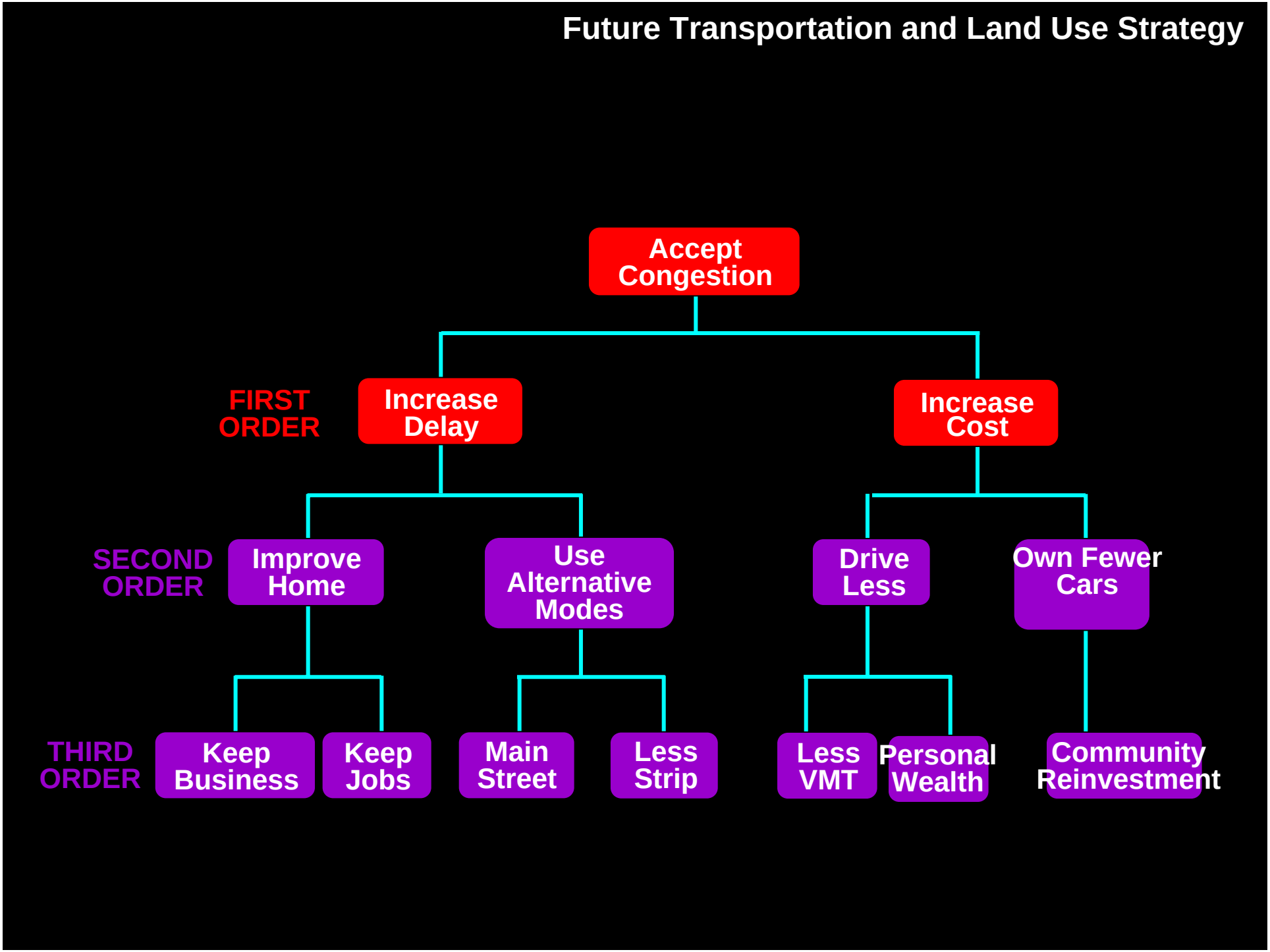
Source: AAA


Household Expenditures
Education 2.1%
Misc. 8.2%
Apparel & Services 4.8%
Shelter 19%
Entertainment 5.0%
Health Care 5.4%
Transportation 17.9%
Utilities 6.8%
Food 13.7%
Other Household 7.5%
Insurance & Pensions 9.6%
Source: Surface Transportation Policy Project: Driven to Spend – The Impact of Sprawl on Transportation Expenditure

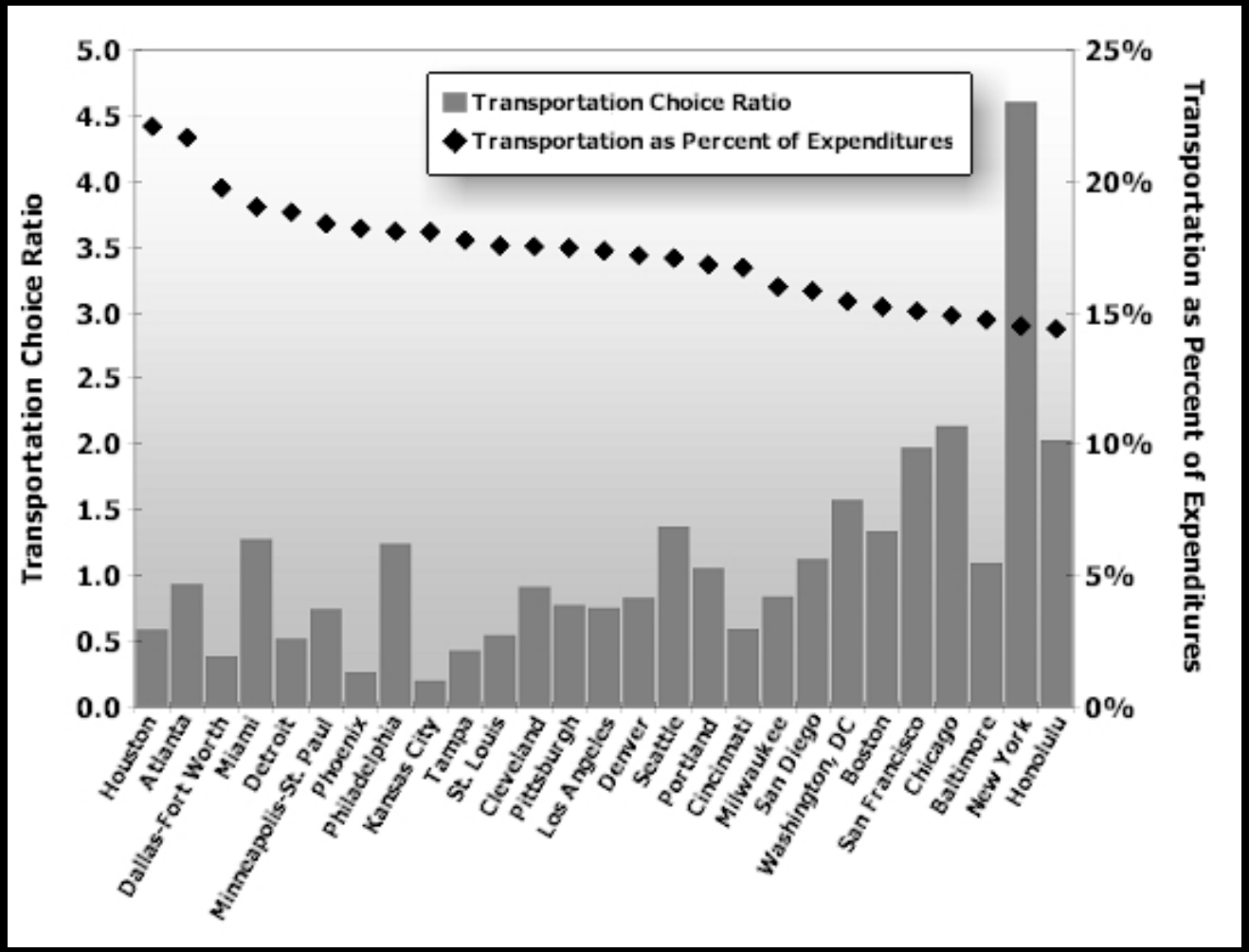
Some

Solutions

Future Transportation and Land Use Strategy



Balanced transportation systems require less resources

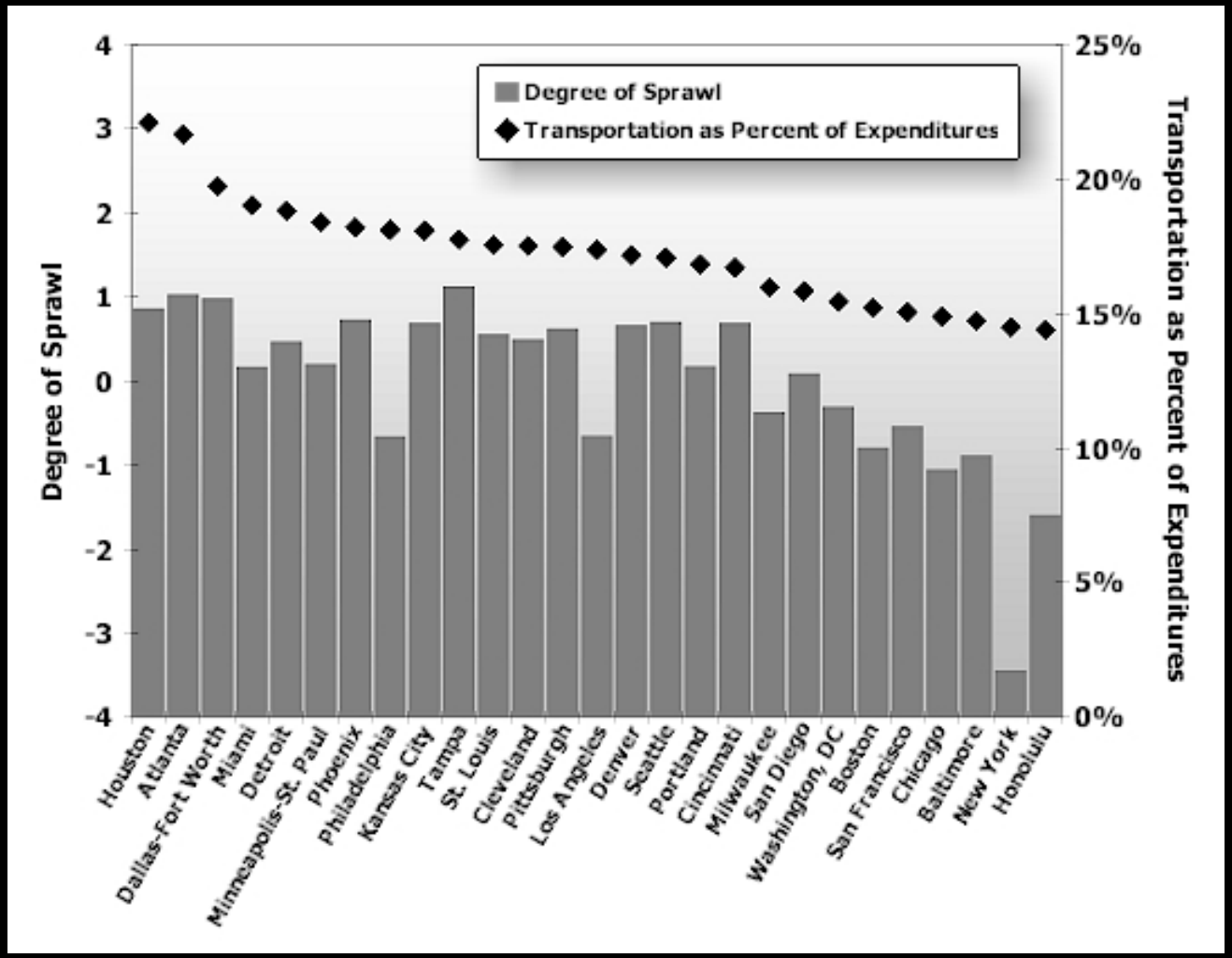


Source: Surface Transportation Policy Project: Driven to Spend – The Impact of Sprawl on Transportation Expenditure

Provide a variety of transportation choices

- Bike network
- Transit service
- Sidewalk network
- Intermodal connections

Sprawl development increases transportation costs



Source: Surface Transportation Policy Project: Driven to Spend – The Impact of Sprawl on Transportation Expenditure

Mix Use?
Trip Purpose – Percentage of Total Trips

Trip Type	% By Trip Type
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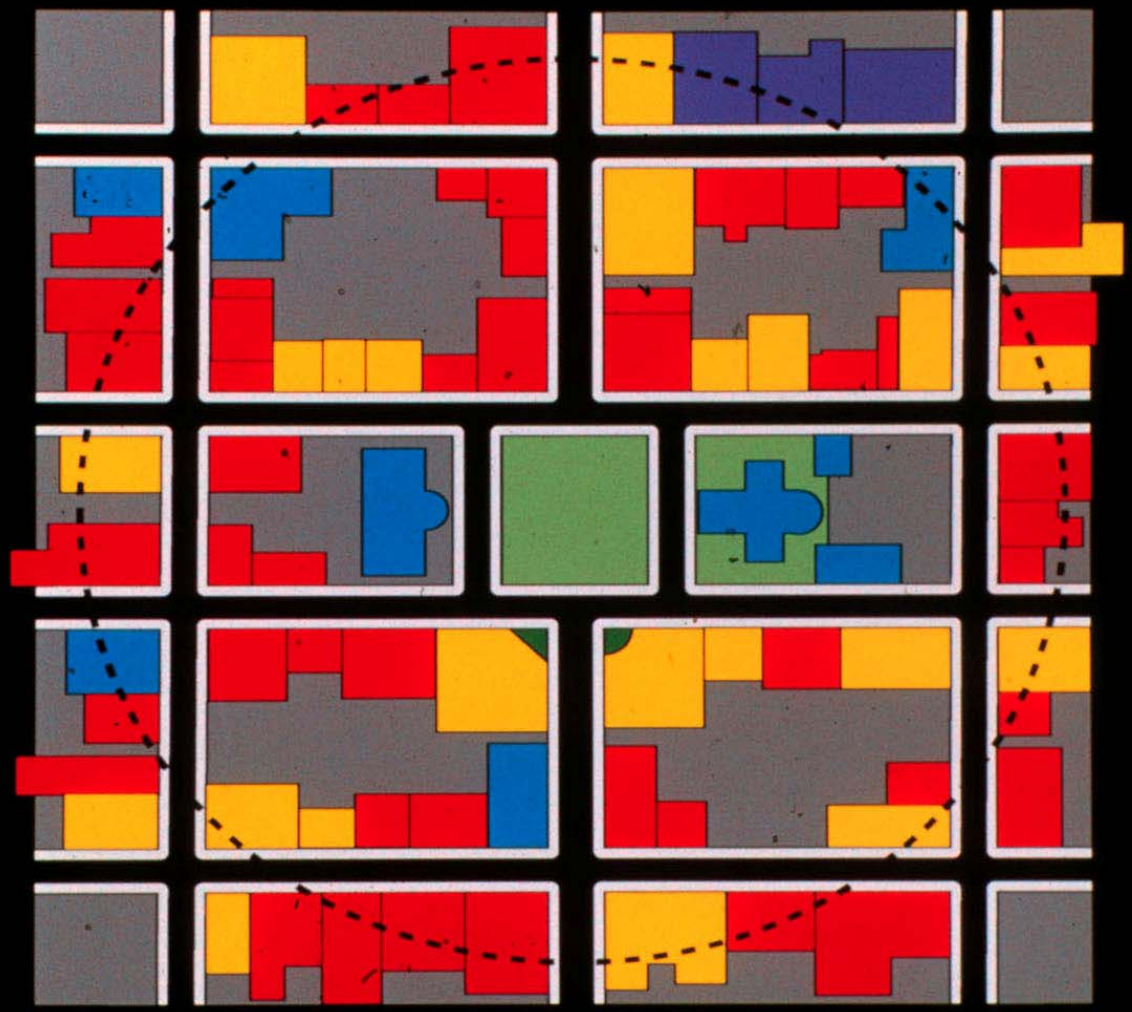
Work	18.0%
Work Related	2.6%
Shopping	20.2%
Doctors & Dentist	1.5%
Family & Personal	24.2%
Church & School	8.8%
Social Recreational	24.5%
Other	0.2%
	100.0%

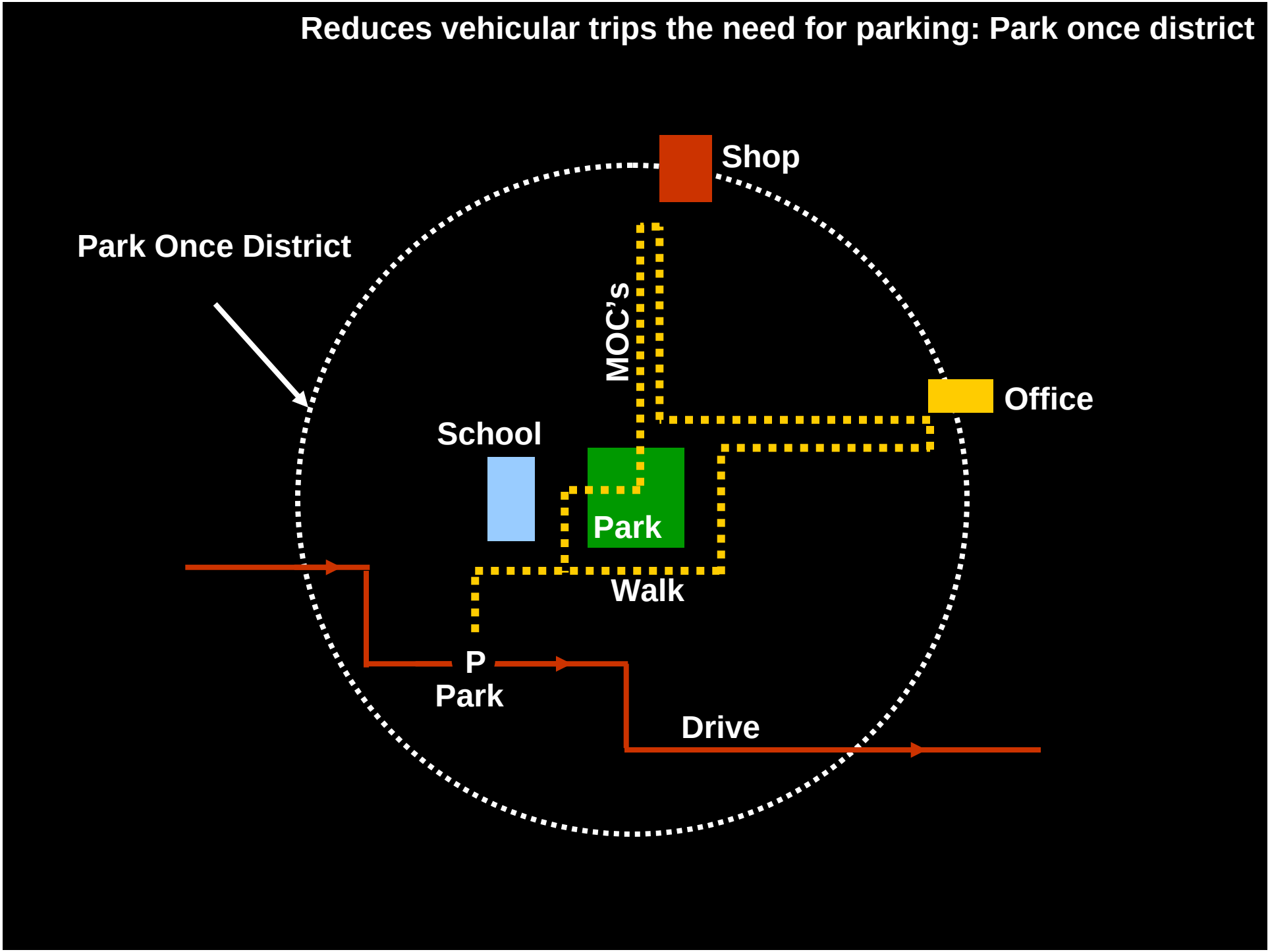
"Errandsville" approximately 70% of all trips occur within 3 miles of the household

Source:1995 NPTS: Federal Highway Administration & New York Times

Create pedestrian scaled mixed use environments



Reduces vehicular trips the need for parking: Park once district

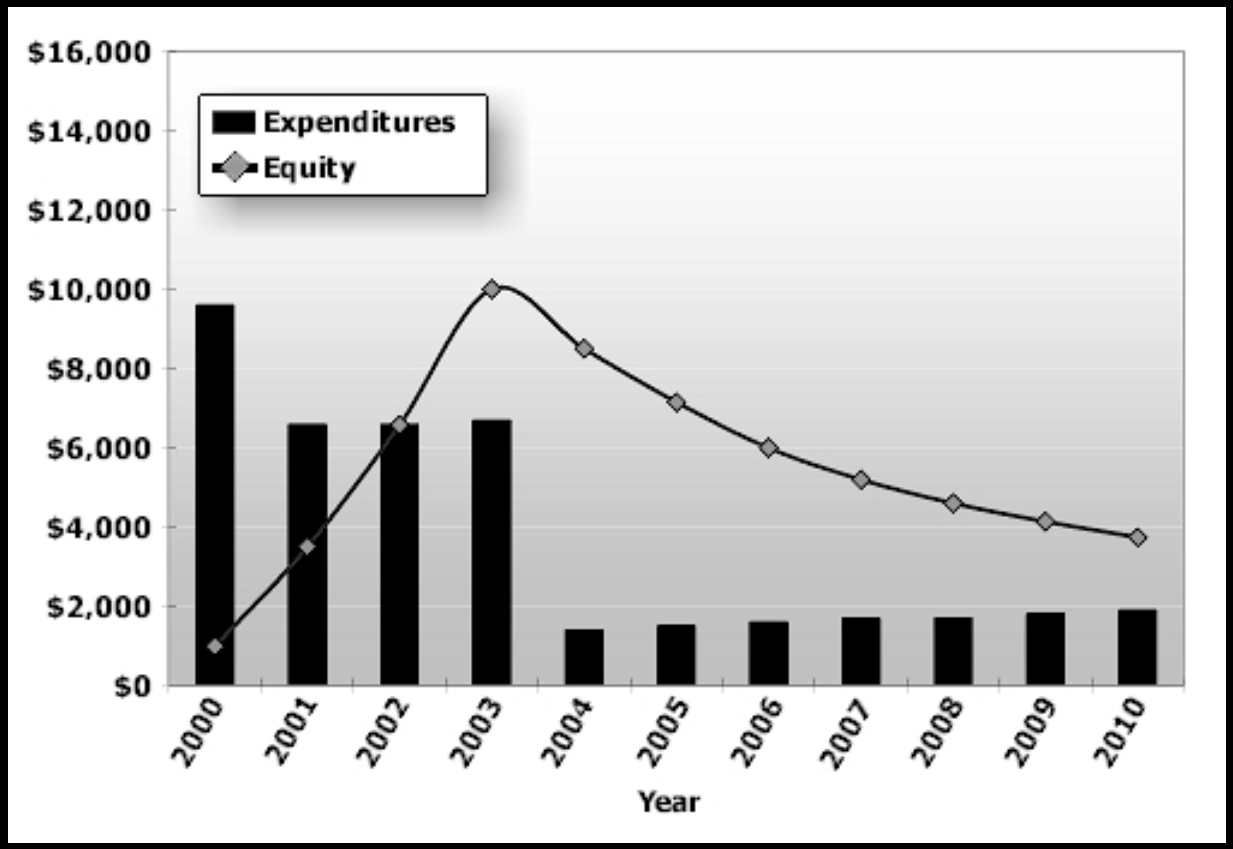


The responsibility lies with new development & redevelopment

The

Bottom Line

Create Affordable Transportation

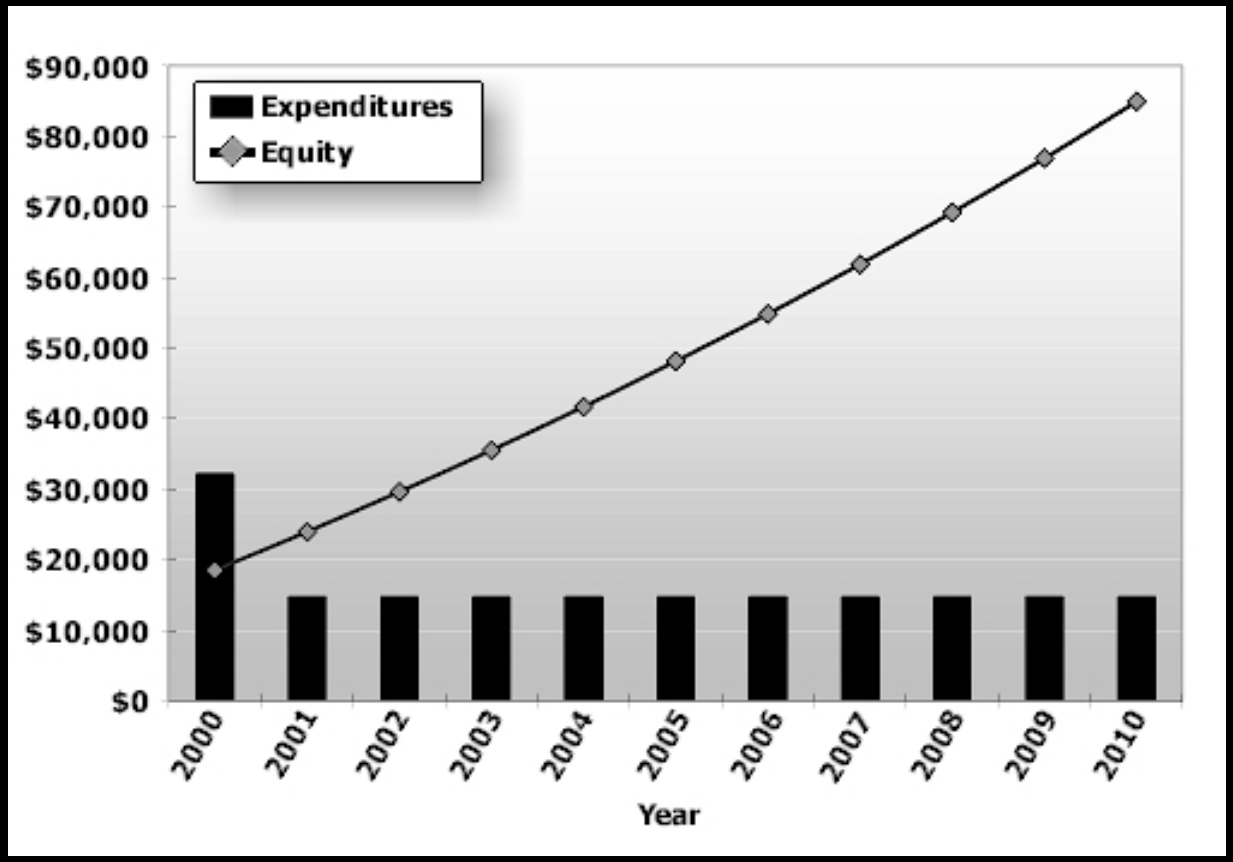


Source: Surface Transportation Policy Project: Driven to Spend – The Impact of Sprawl on Transportation Expenditure

CAR SHEDDING

Annual Cost of a Car	$	7,533.00
Monthly Cost of a Car	$	627.75
Average Interest Rate ??		7%
Present Value of a 30-Year Loan		$94,905.98
Mattress (30-Years)	$	225,990.00
5% Investment (30-Years)		$522,450.36
10% Investment (30-Years)		$1,419,021.29

Build Individual and Community Equity

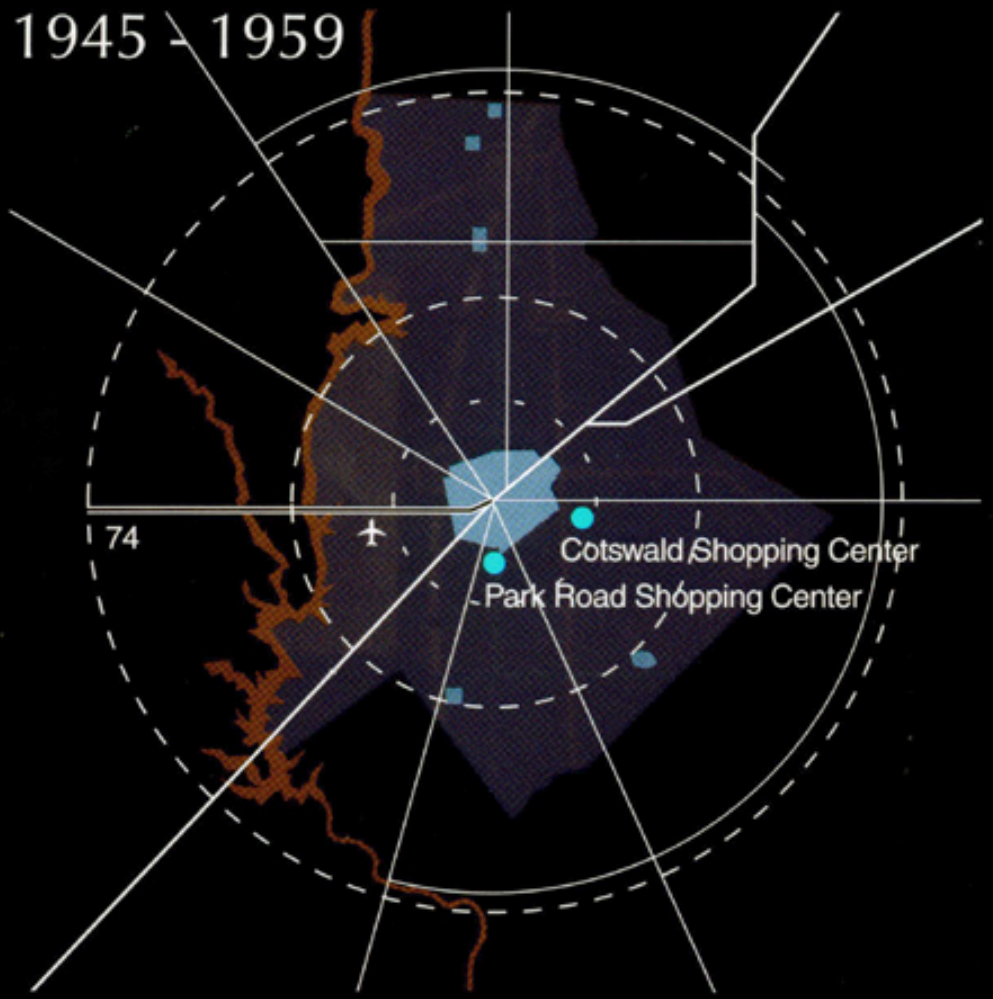


Source: Surface Transportation Policy Project: Driven to Spend – The Impact of Sprawl on Transportation Expenditure

Charlotte

North Carolina

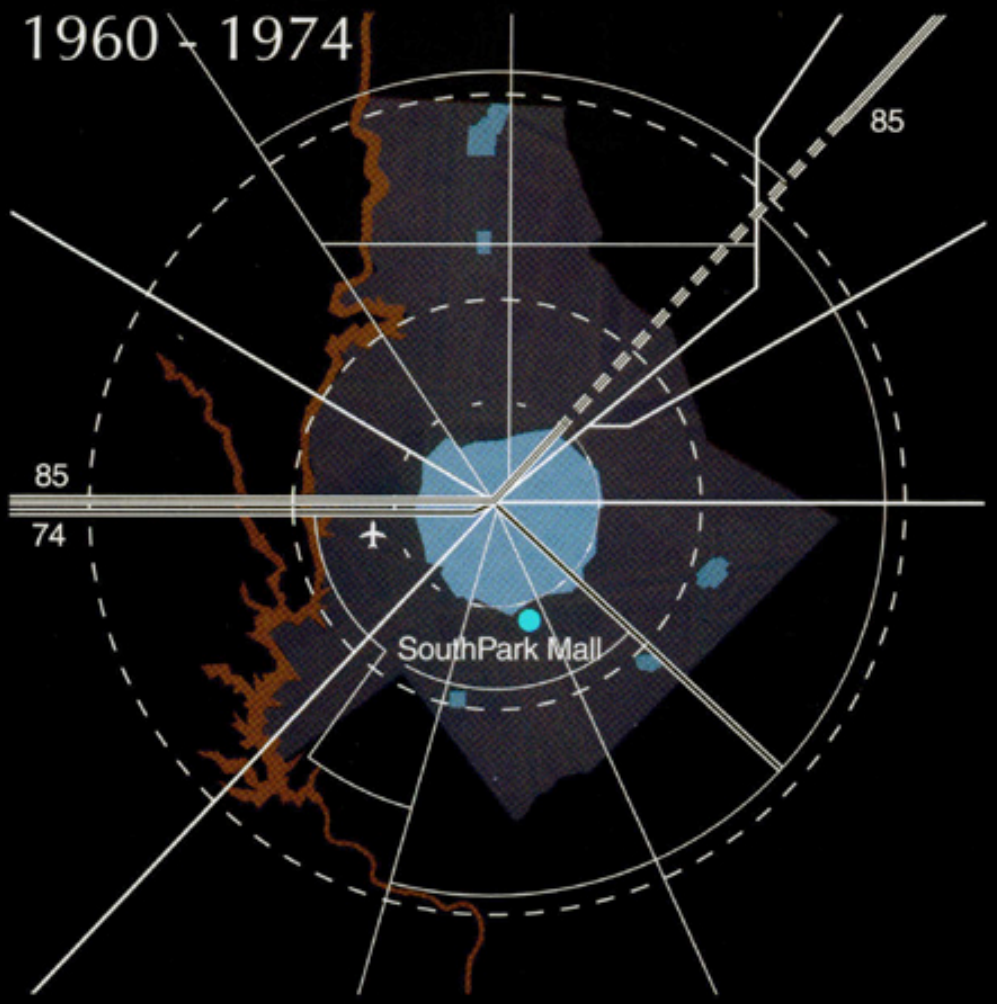
Charlotte's Shared Vision



1940 CITY	100,899
1940 COUNTY	151,826

Planning Milestone: "How Shall We Grow?" - 1954

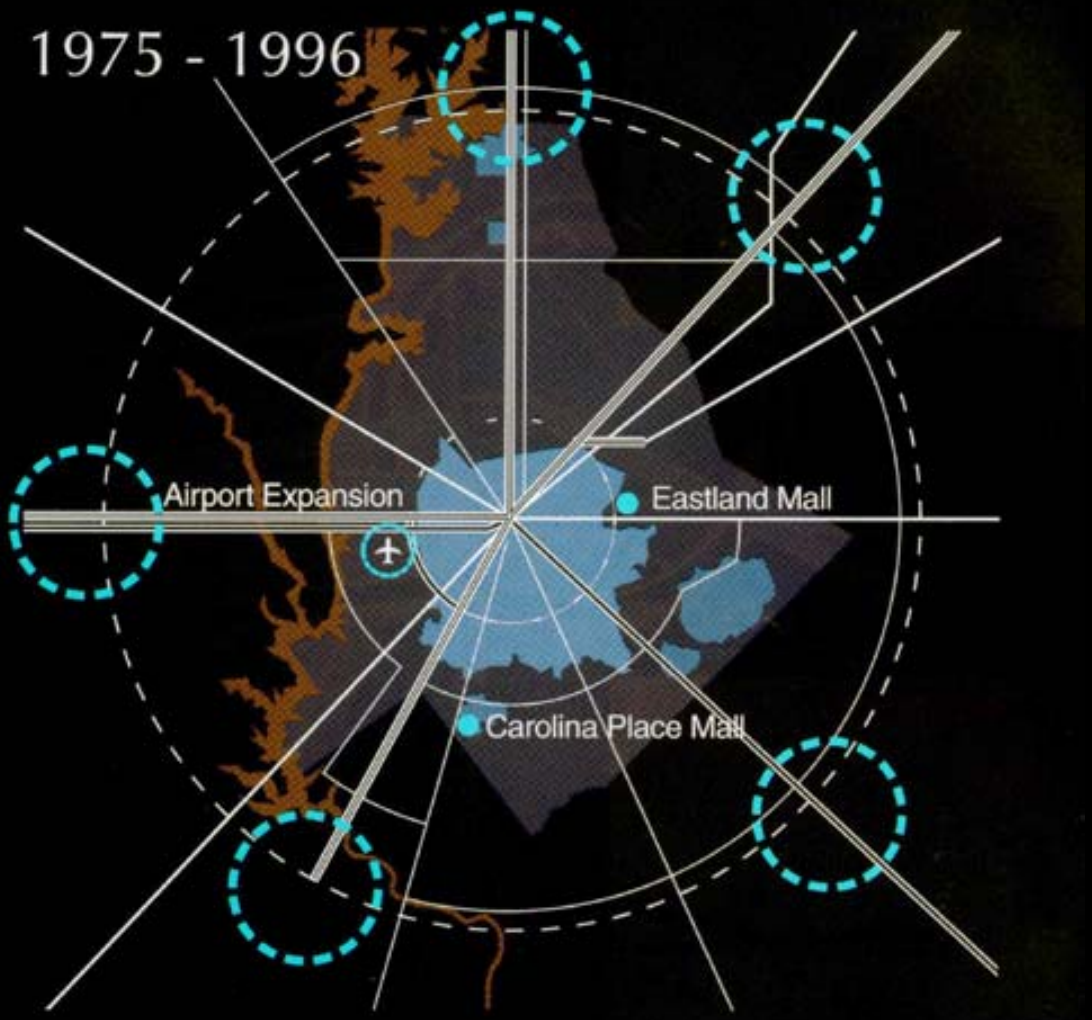
Charlotte's Shared Vision



1960 CITY 201,564
1960 COUNTY 272,111

1995 Comprehensive Plan adopted - 1975

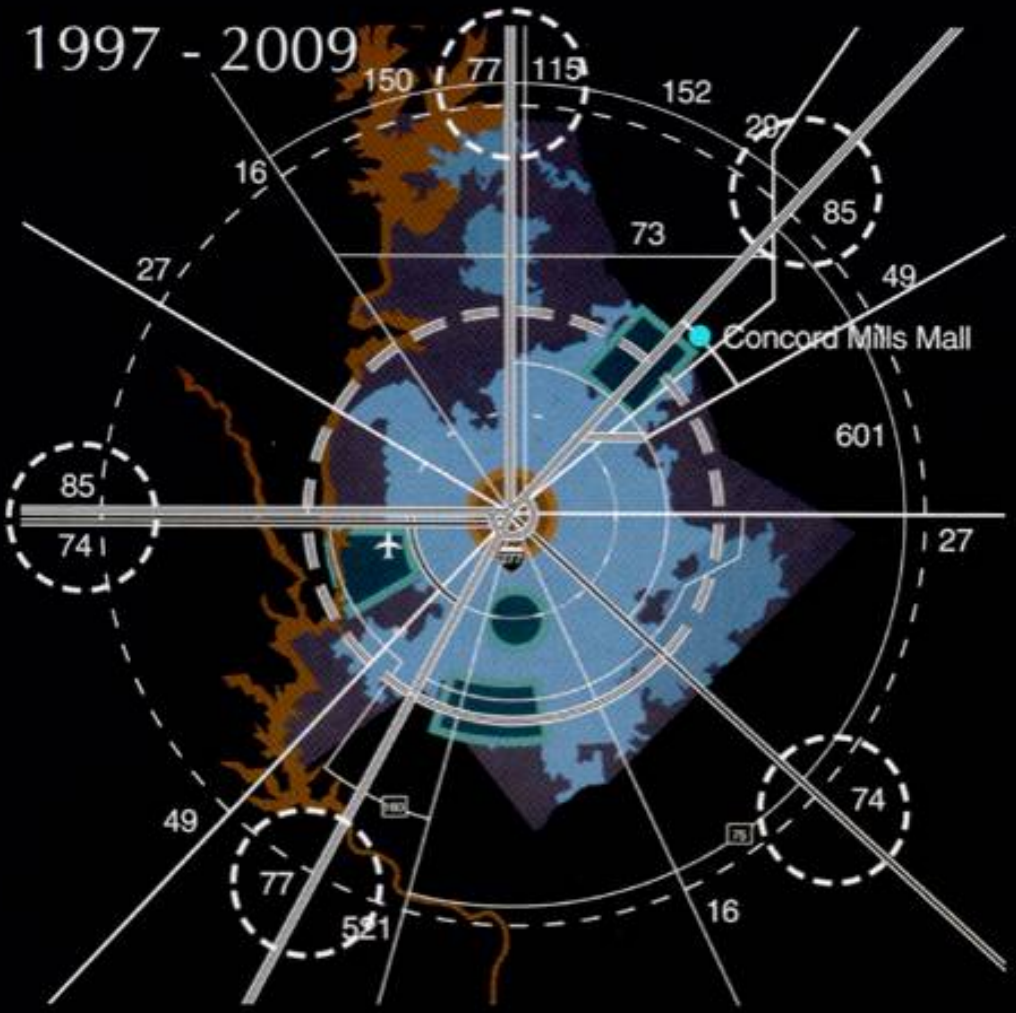
Charlotte's Shared Vision



1980 CITY	315,474
1980 COUNTY	404,270
1980 TOWNS	16,983

2005 Plan adopted - 1985

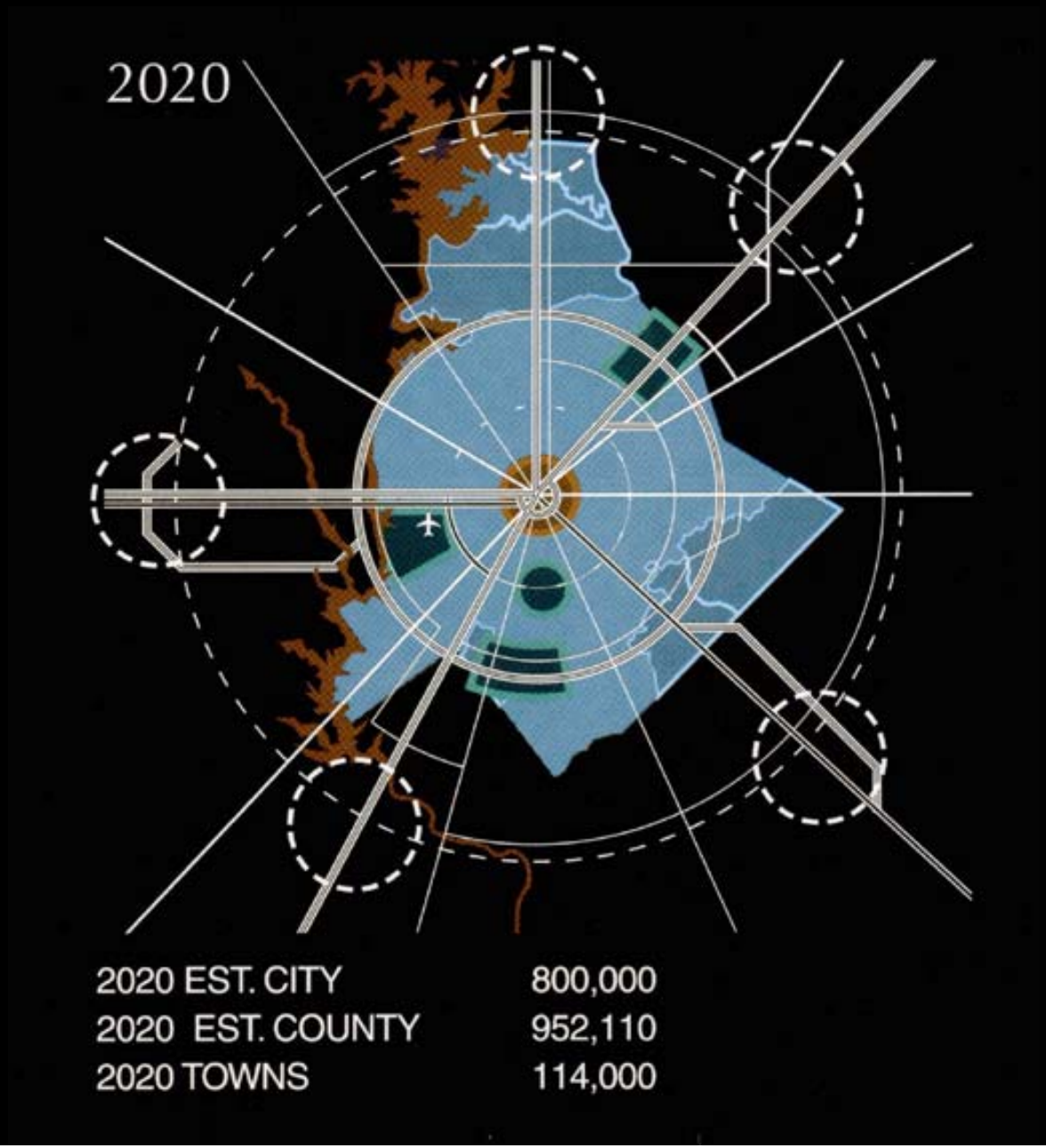
Charlotte's Shared Vision



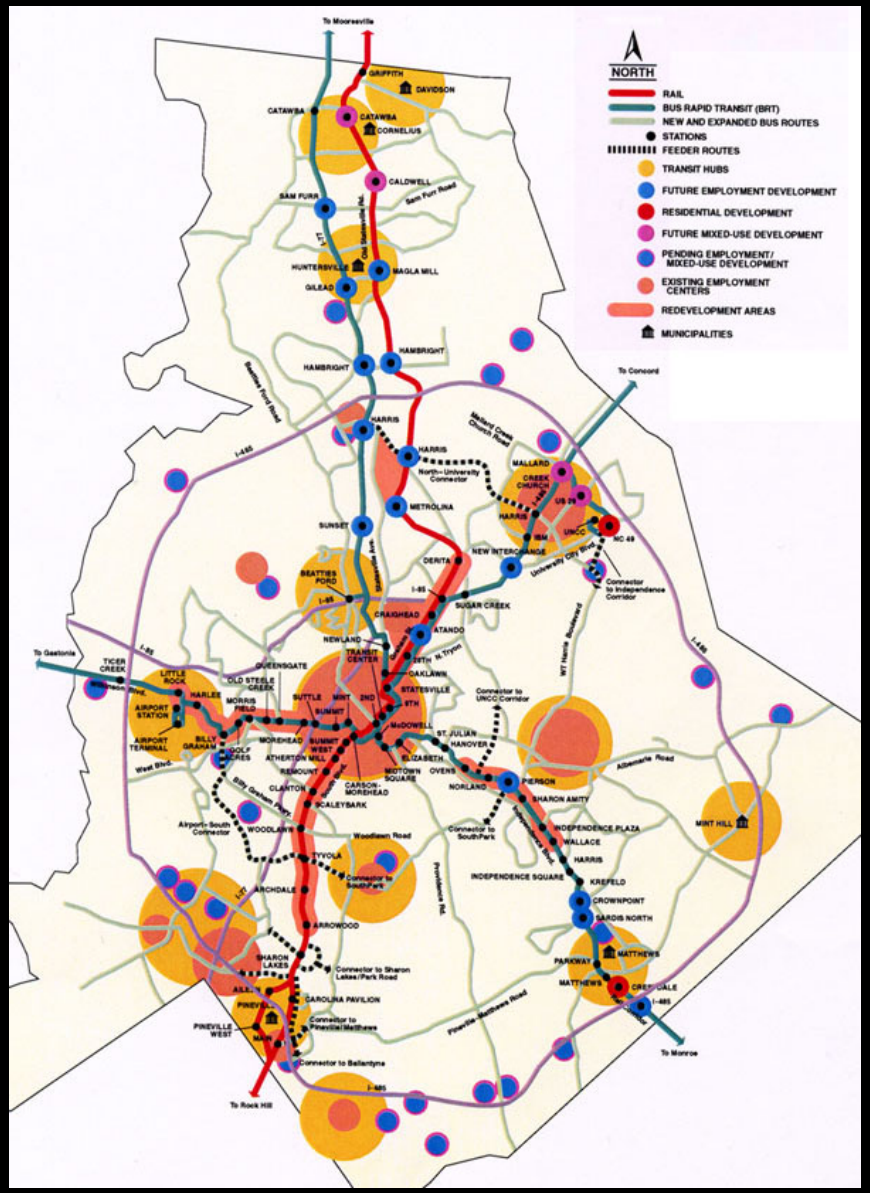
1997 CITY	513,000
1997 COUNTY	610,000
1997 TOWNS	65,000

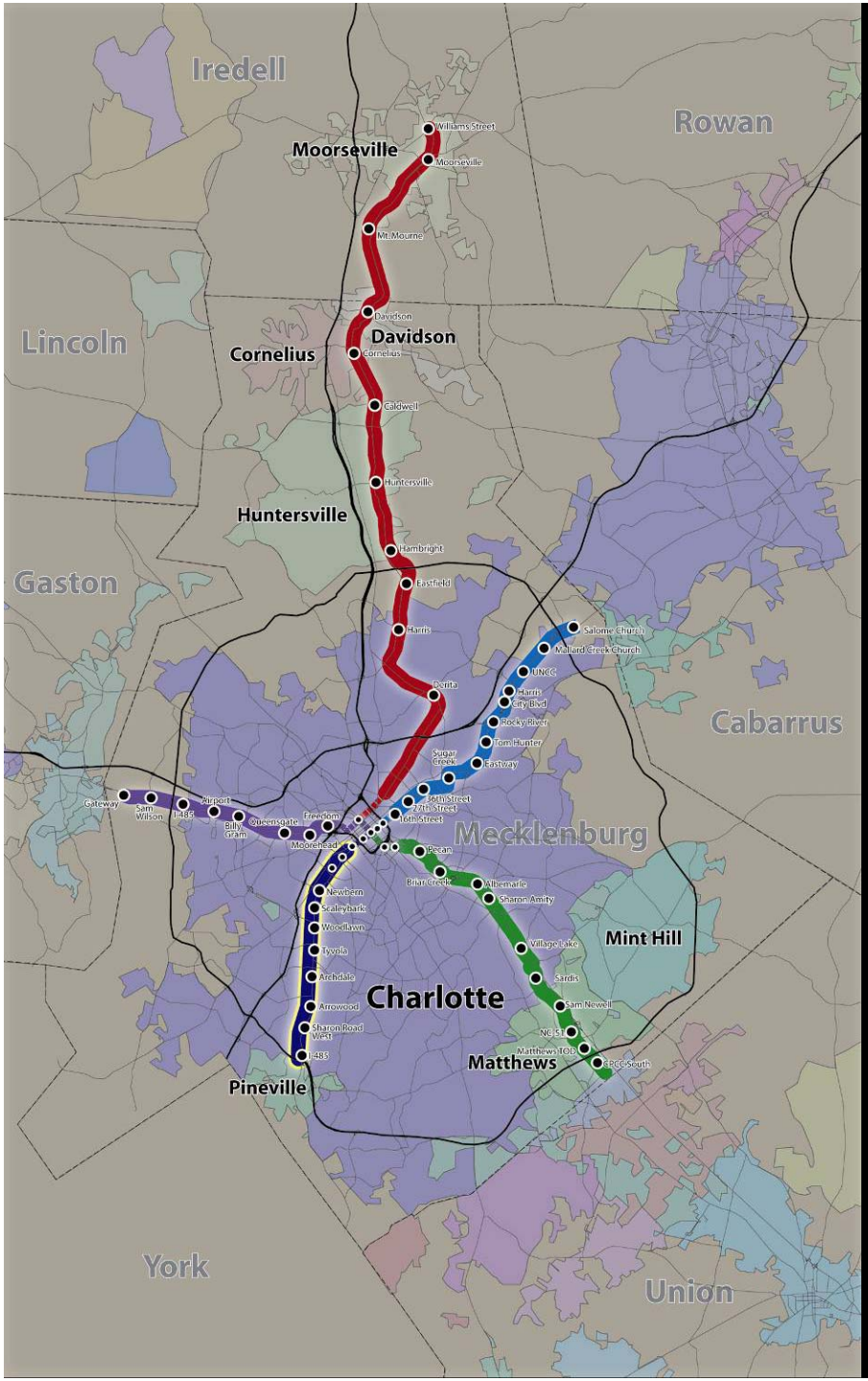
2015 Plan Adopted 1997

Charlotte's Shared Vision



Centers & Corridors Vision





Implementing the Program to Build a Community

Implementing Cats System Plan

- 5 Transit Corridors (58 Stations)

- South Corridor – LRT – Under Construction
  - 15 stations

- 4 Transit Corridors in DEIS
  - North Corridor – Commuter Rail (12 Stations)
  - Northeast Corridor – LRT (13 Stations)
  - Southeast Corridor – LRT/BRT (13 Stations)
  - West Corridor – LRT/BRT (9 Stations)

1 Street Car Corridor in DEIS

Implementing the Program to Build a Community

2025 Centers & Corridors
The CATS System Plan
Transit Station Area Principles

Defines:
- Roles of Stations
- Area's Context

Draft Environmental Impact Statement (DEIS)
Alignment,
Corridor Urban Design Framework,
Station Types & Locations,
TOD Assessment, and
Station Area Concepts.

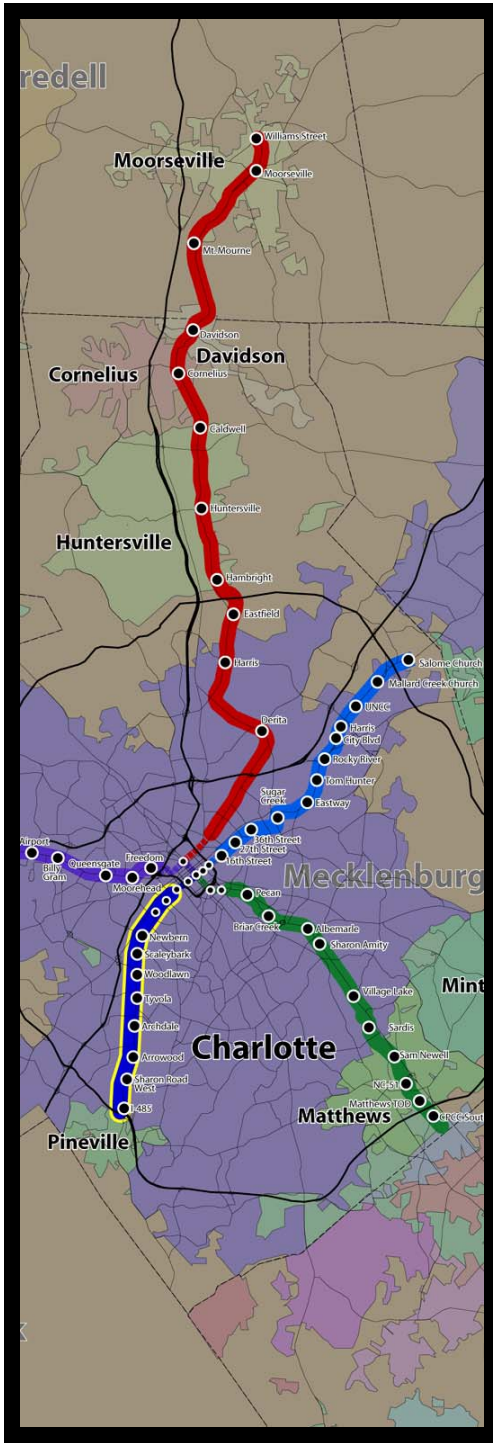
Informs:
- TOD Opportunities
- Joint Development Roles
- Infrastructure Needs
- Amenity Needs

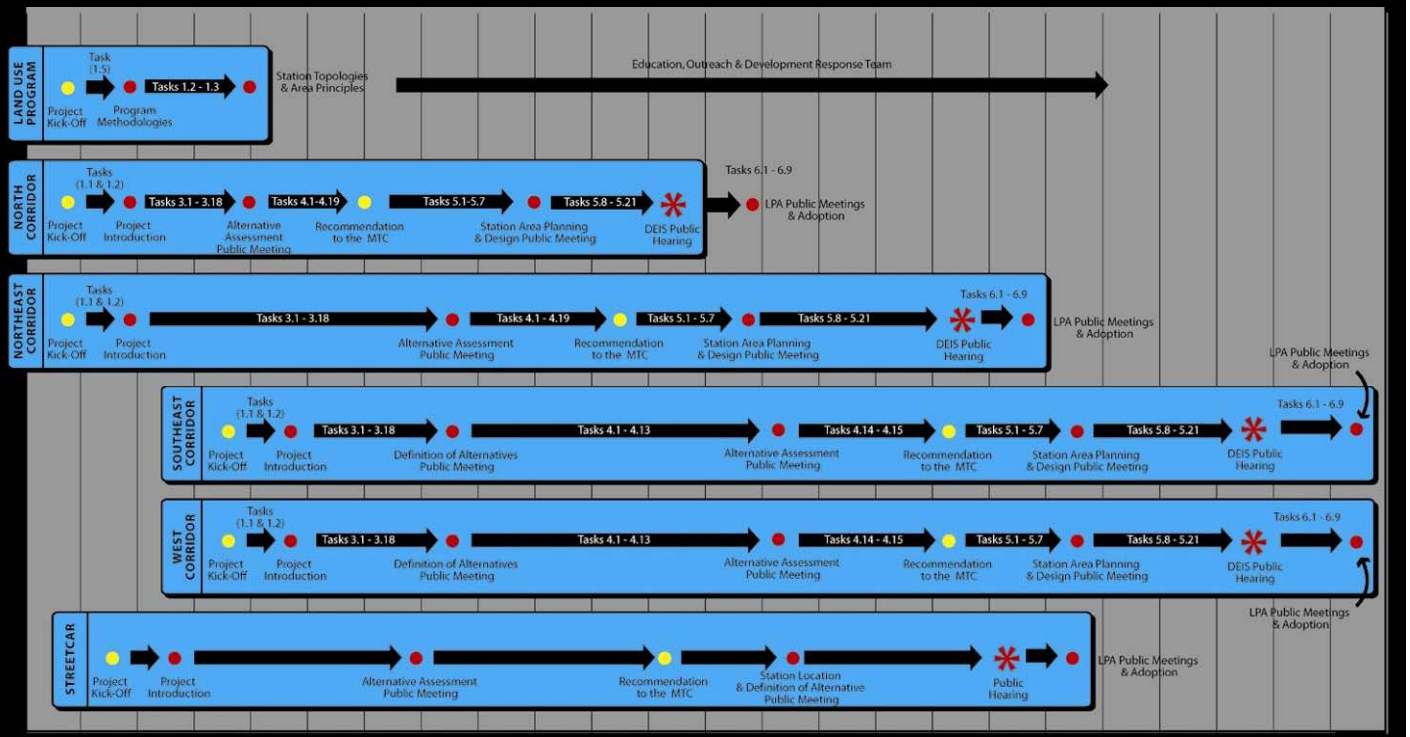
Informs:
- Mitigation Strategies
- Station Elements
- Conceptual Design

Station Area
Planning & Design

Transit
Engineering & Design

Implementing the Program to Build a Community



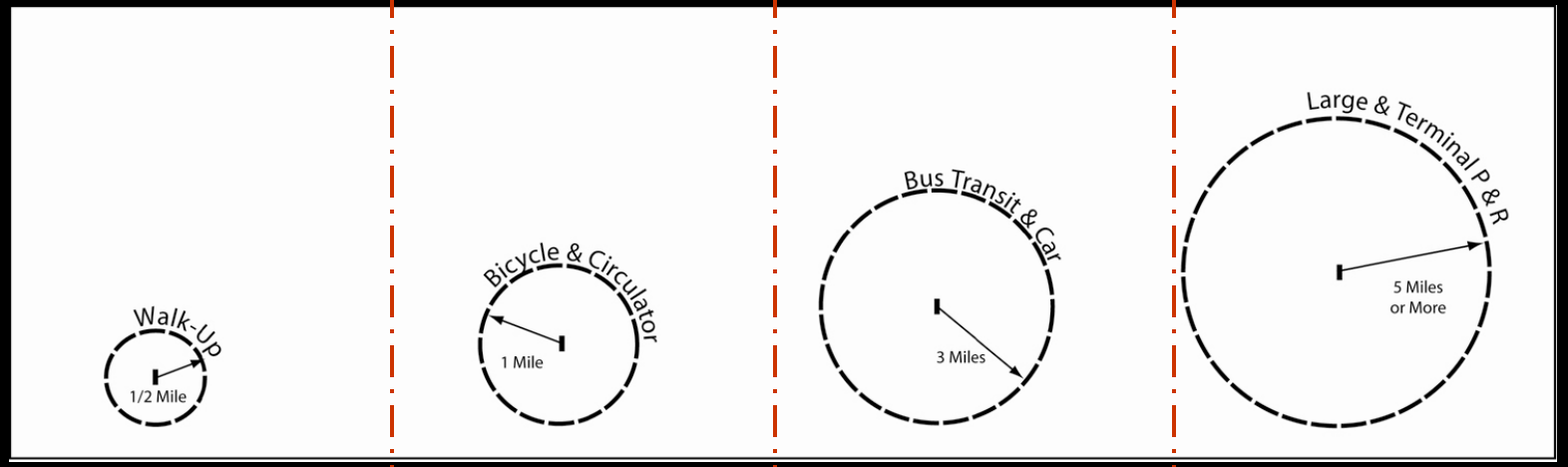


Schedule

Implementing the Program to Build a Community

Implementing the Program to Build a Community

Station Service Area – All Modes



½ - Mile Service Area

- Only serve a localized area immediately around the station
- Stations can be grouped to provide better service area overlay in the densest of areas
- Locate near minor thoroughfare

1 - Mile Service Area

- Most common transit stations
- Reliant on bus connections to the station
- Some customers will arrive by car - need for adequate parking and Kiss & Ride areas.
- Locate near thoroughfare

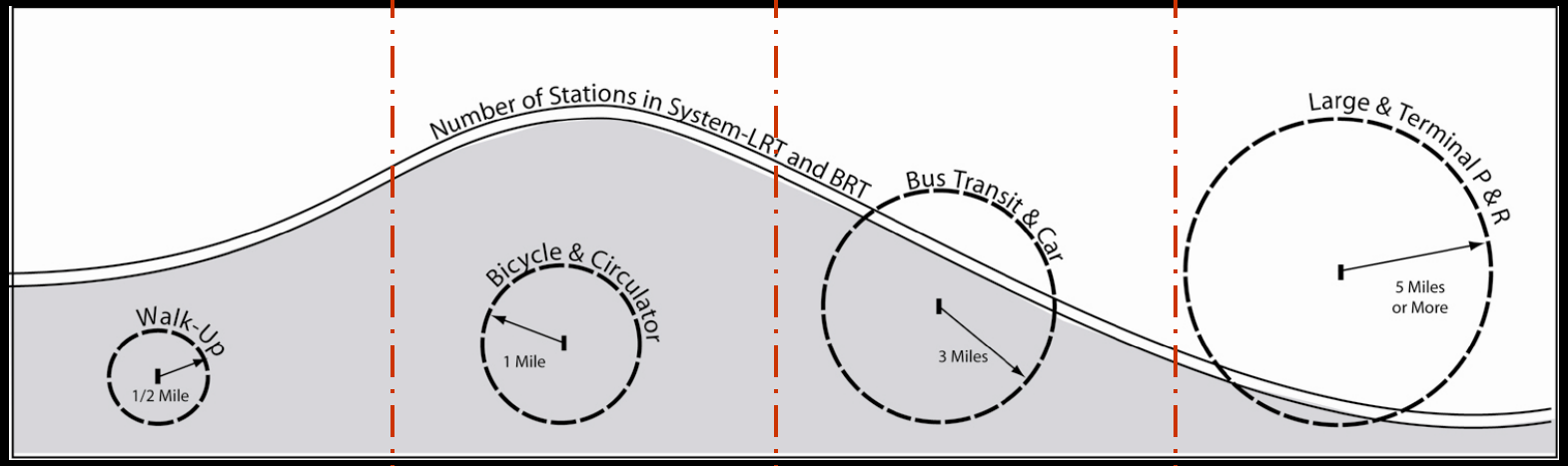
3-Mile Service Area

- Access by a more limited feeder bus network and a larger number of private vehicles
- Provide adequate facilities for all modes of travel
- Locate near major thoroughfare

5 - Mile Service Area

- Typically the station's toward the end of the line.
- Access primarily by private vehicles
- Access to major thoroughfare or freeways.

Station Service Area – All Modes



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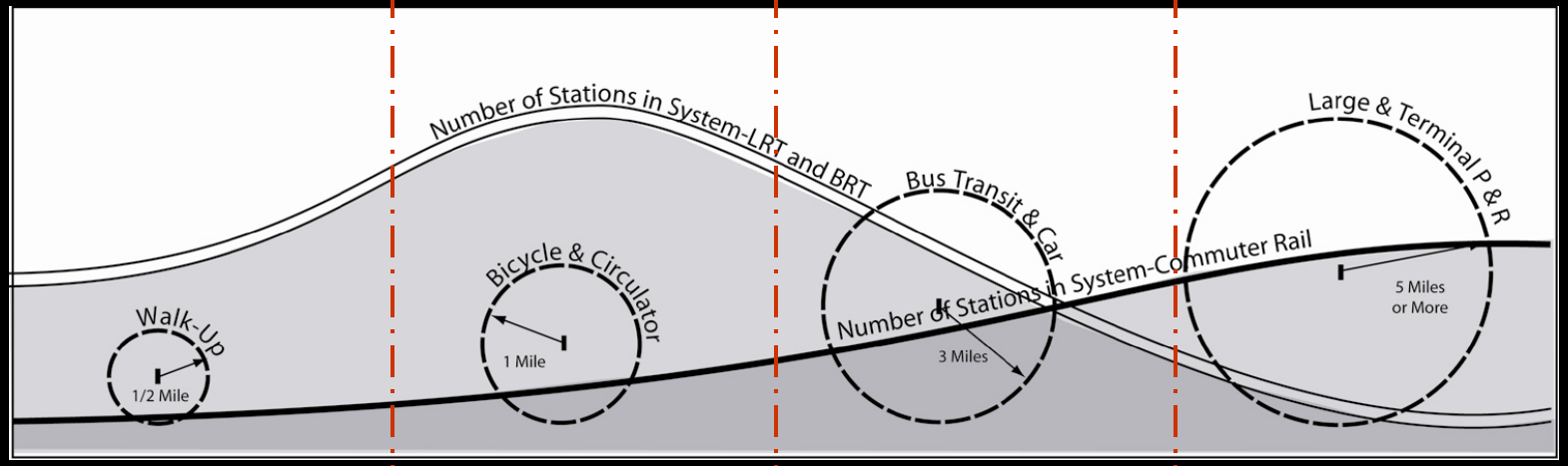

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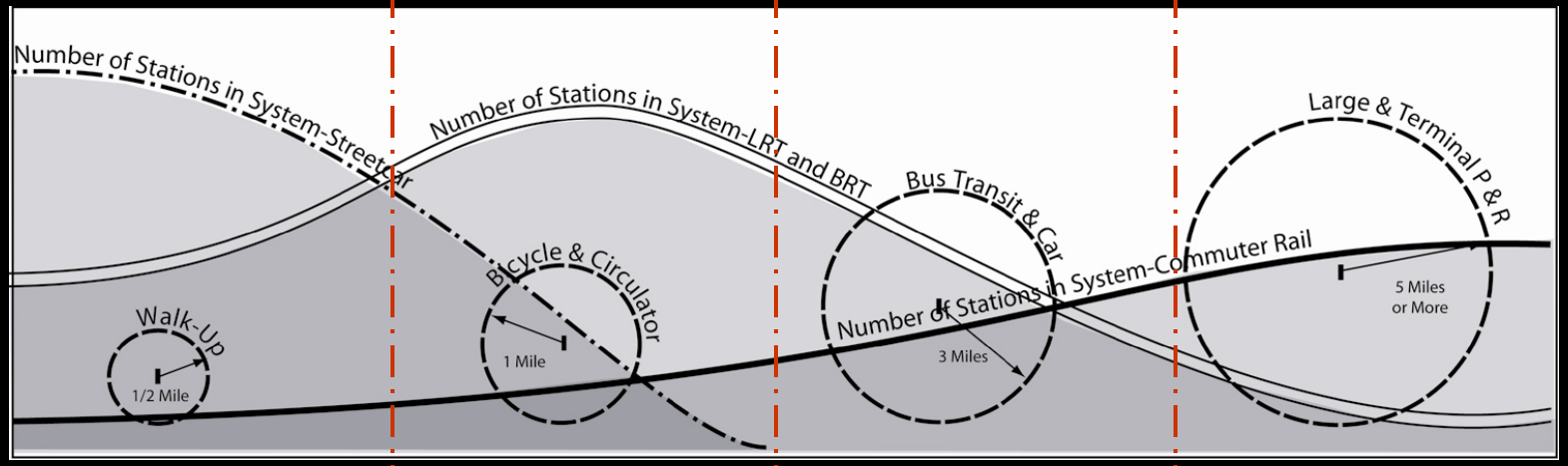
Transit Service Area – All Modes



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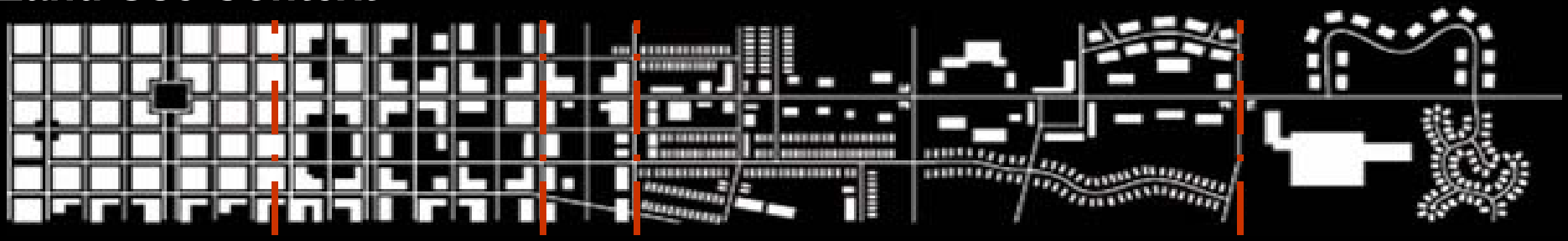
Land Use Context



High Intensity Urban Core

• Uptown
Most accessible place in the region

• Well-established and connected street pattern

• Densities supportive of transit

• Transit ranges from small local stations to large multi-modal stations

• Strong TOD development market

Established Urban Neighborhoods & Historic Communities

• Includes South End, NoDa, Plaza Midwood, Elizabeth, and West Morehead

• Also includes Mooresville, Davidson, Cornelius, and Huntersville

• All have individual character built-up over time

• All feature a connected block system and transit-supportive densities

• TOD development market varies, may need assistance.

Industrial Communities

• Important Centers of Employment

• Many have individual character built-up over time

• Generally well connected street network

• Often there are physical barriers to TOD Development

• TOD development market varies, and may need assistance.

Established Suburban Neighborhoods

• Most common built form

• These areas are well developed, but lack orientation to the public realm

• Access usually comes from a fewer large roads

• Densities tend to be below transit-supportive levels.

•Few centers of activity

• TOD development market varies, may need assistance

New Suburban and Greenfields

• Outermost edge of the transit region

• Areas are quickly developing

• Connections are limited; but opportunities abound

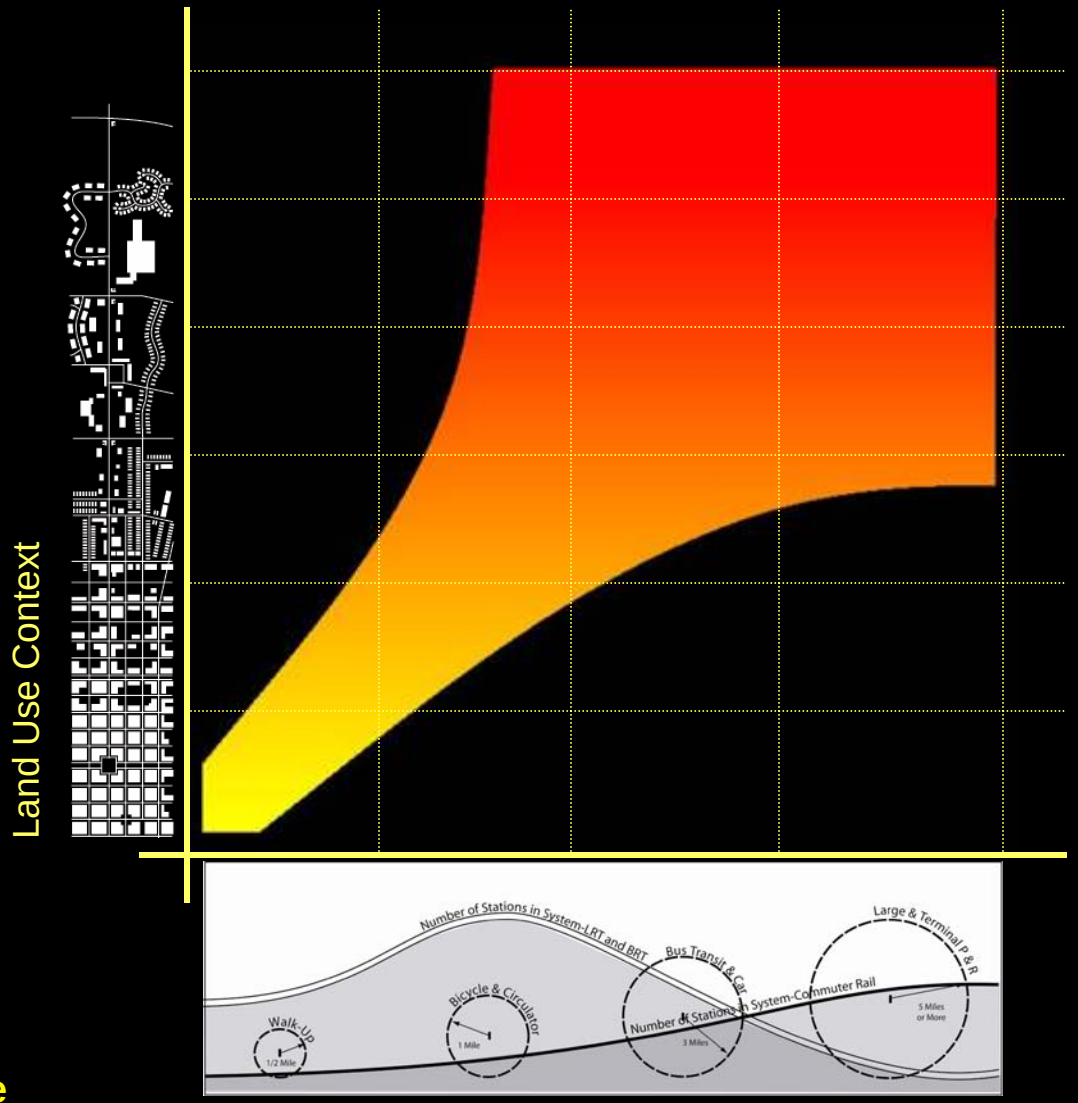
• Densities are well below transit-supportive levels

• Stations located here will attract riders from a larger area

•No existing centers of activity

•TOD development varies.

Role of Transit and Land Use within the Regional Context



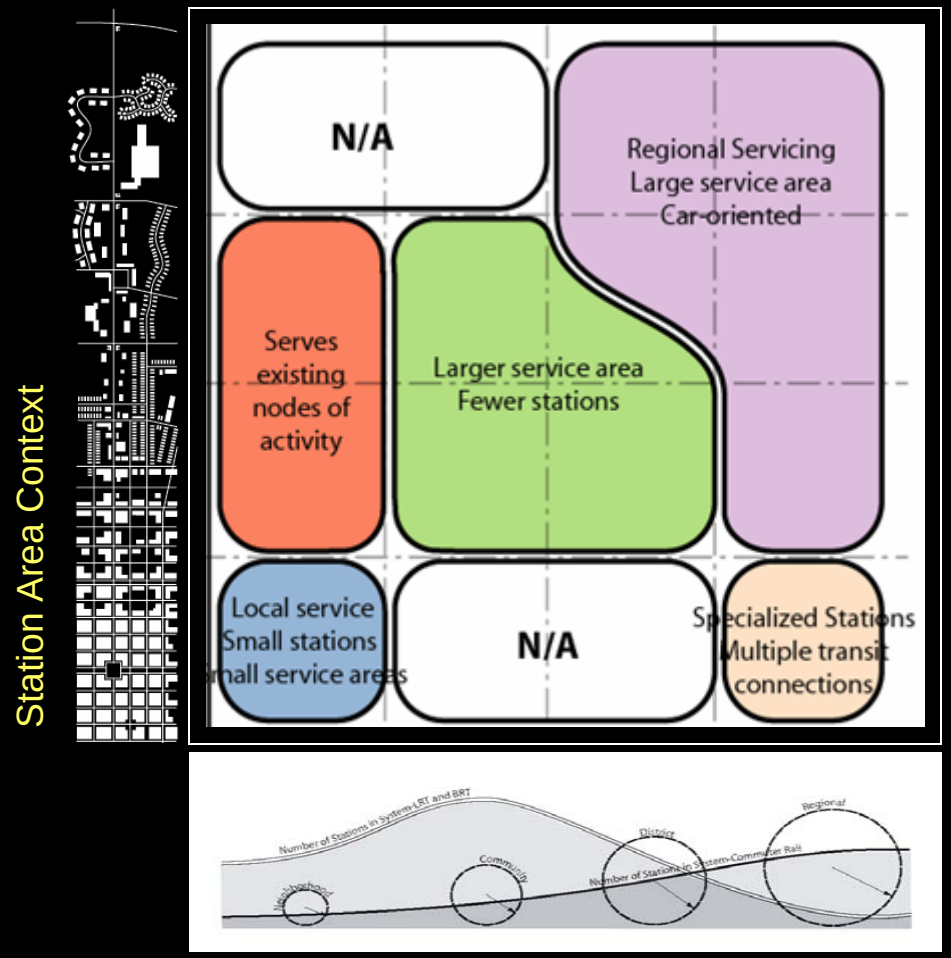
Transit's Role:
Mobility,
Placemaking, and
Development.

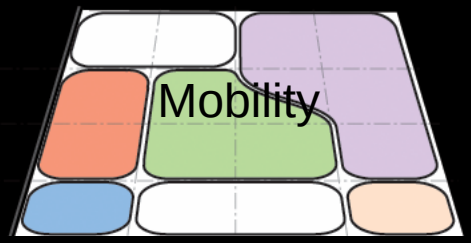
Station Plan's Role
Concentration
Mixture of Uses
Focal Point

Transit's Role
Mobility Infrastructure

Station Plan's Role
Context
Stabilization
Redevelopment

Roles of a Transit Station - Mobility

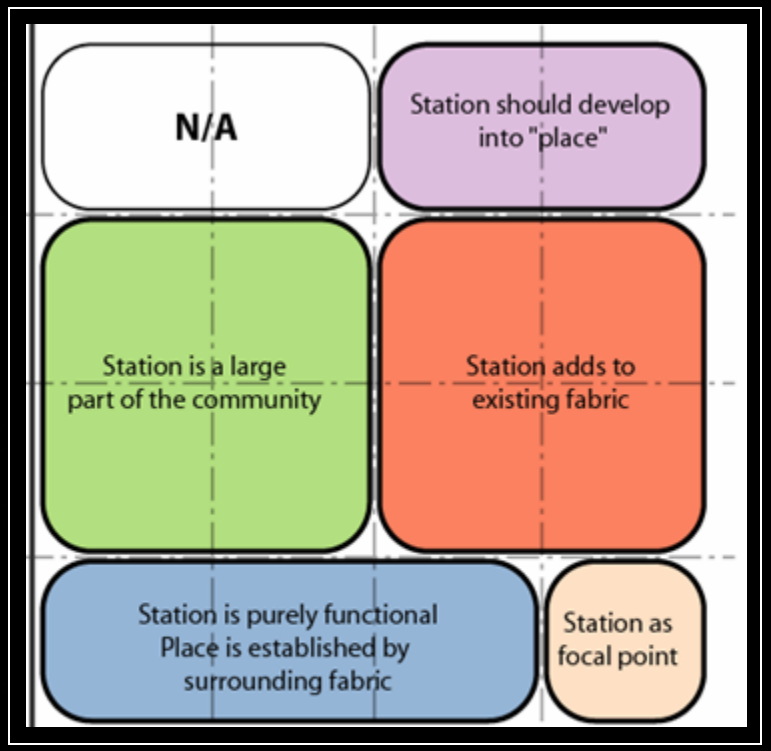


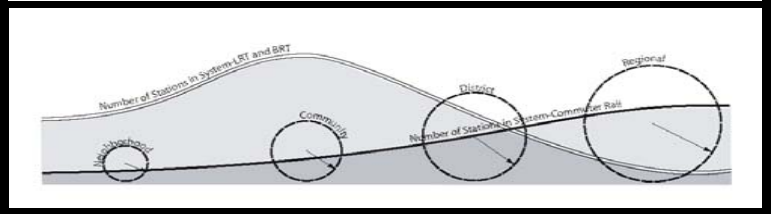


Station Service Area

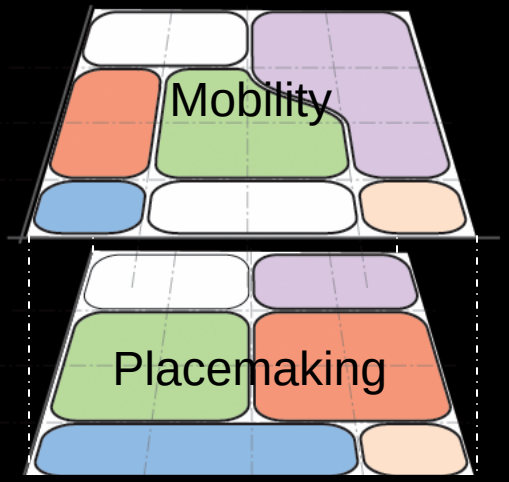
Roles of a Transit Station - Placemaking

Station Area Context



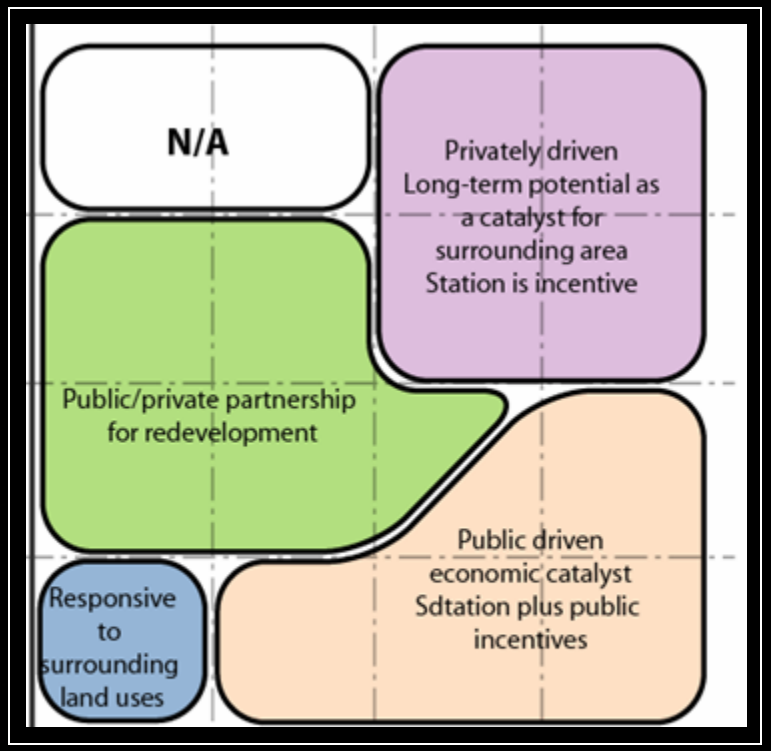


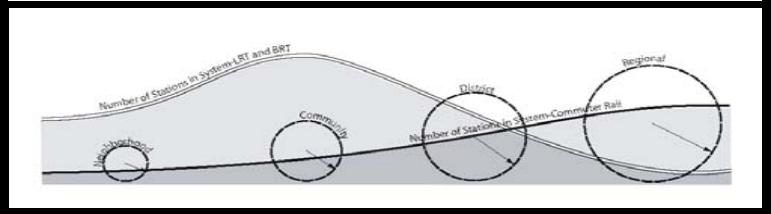
Station Service Area



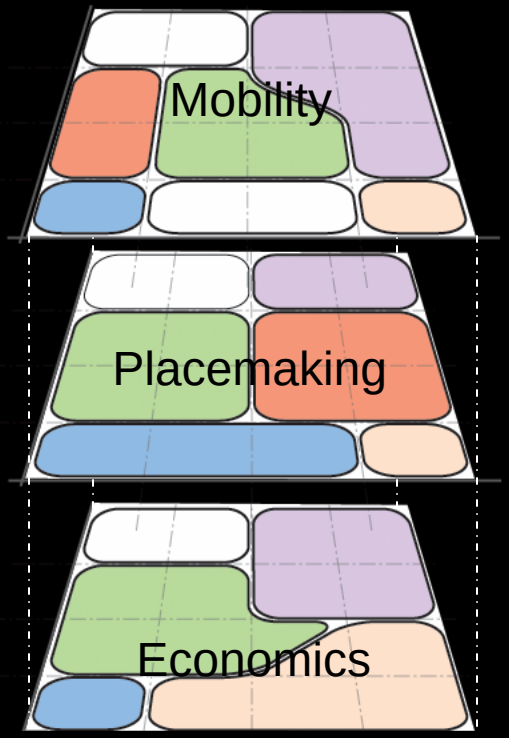
Roles of a Transit Station-Economics

Station Area Context



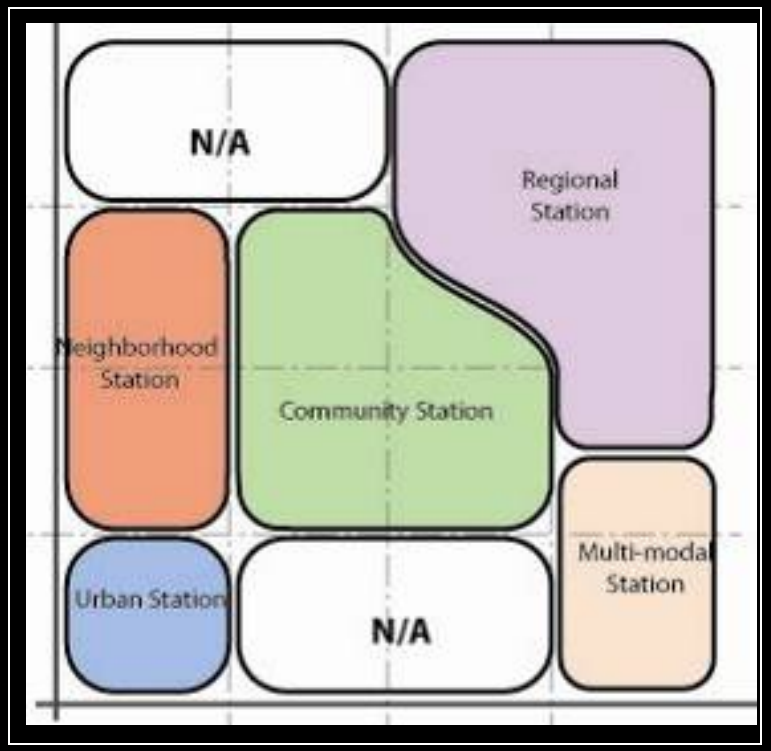


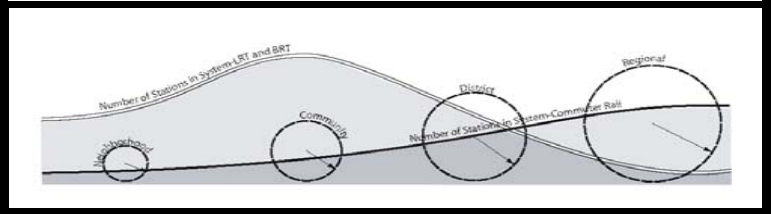
Station Service Area



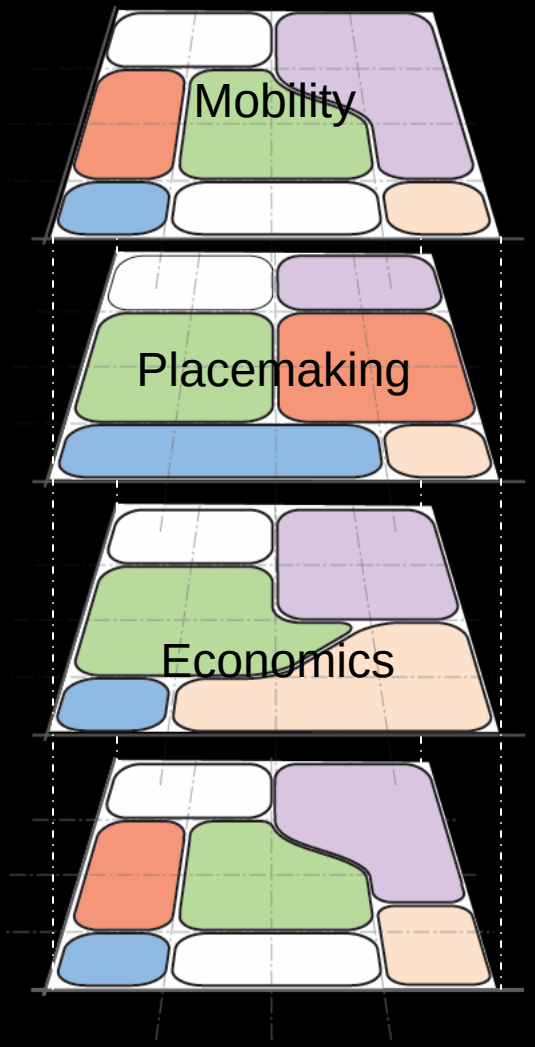
Roles of a Transit Station-Composite

Station Area Context

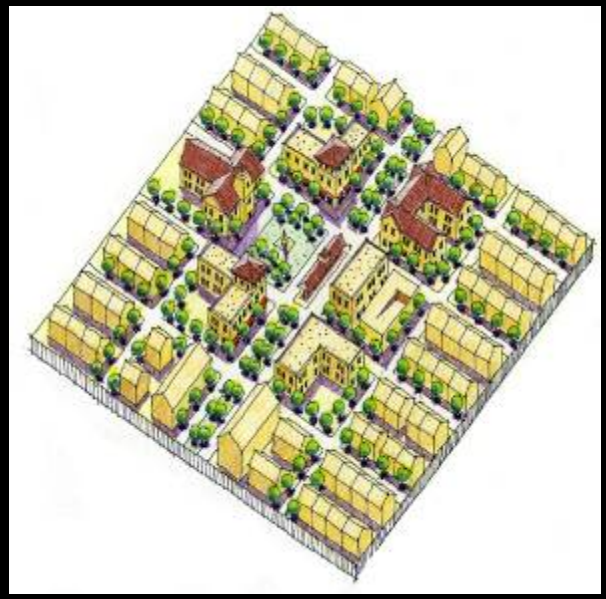




Station Service Area

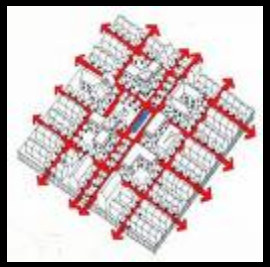


Creating a TOD



Transit Facility Design

Great Public Spaces



Organized Street Network

Land Use & Development

Transit Facility

Design


FLEA
MARKET
USA
CARNIVAL
USA
KIDS RIDES • FOODS • AMUSEMENTS
FLEA
MARKET
USA
PARKING
WELCOME TO
FLEA MARKET USA


Gresham
SEASONS

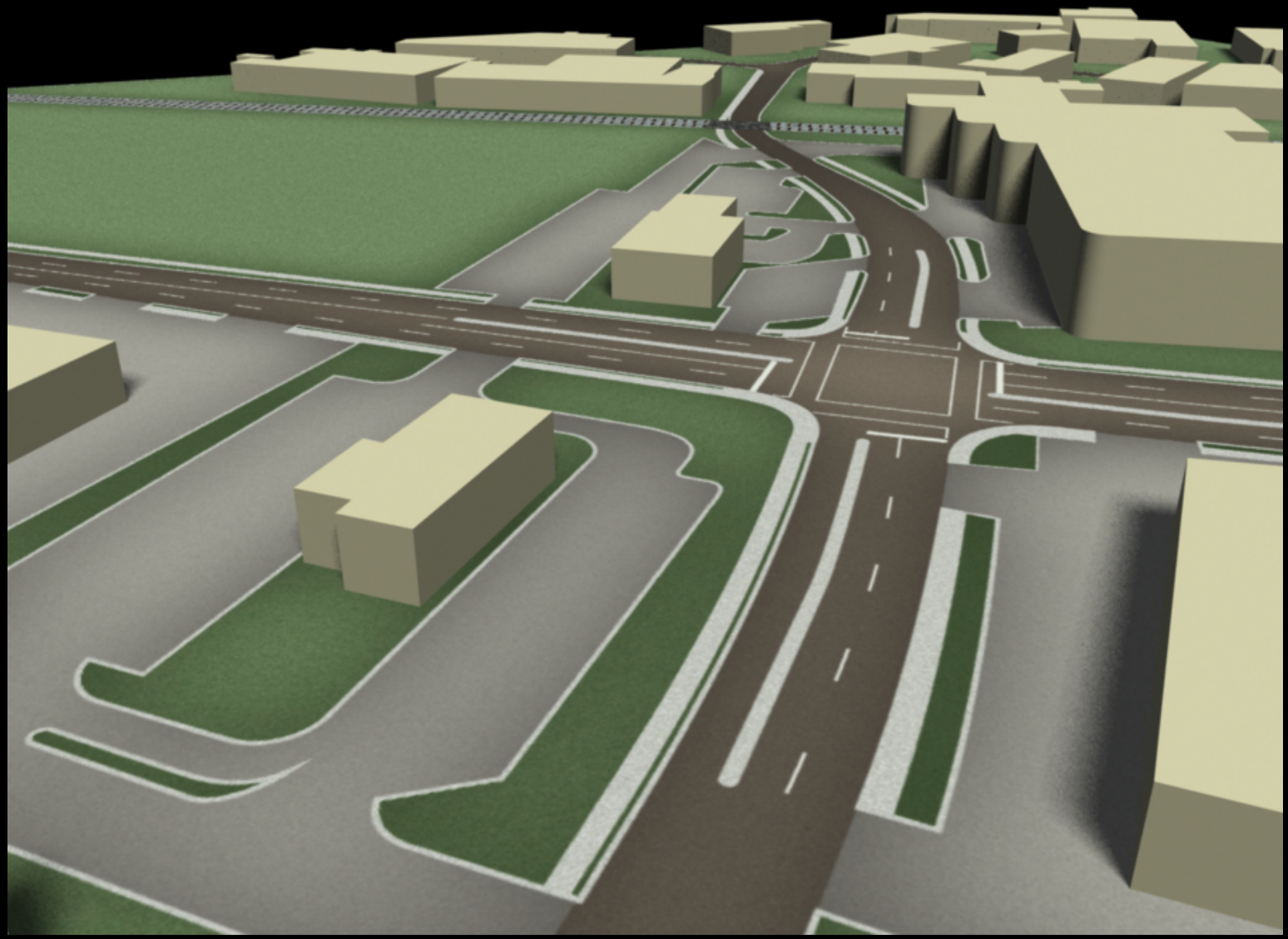
Urban Boulevard

Urban Boulevard

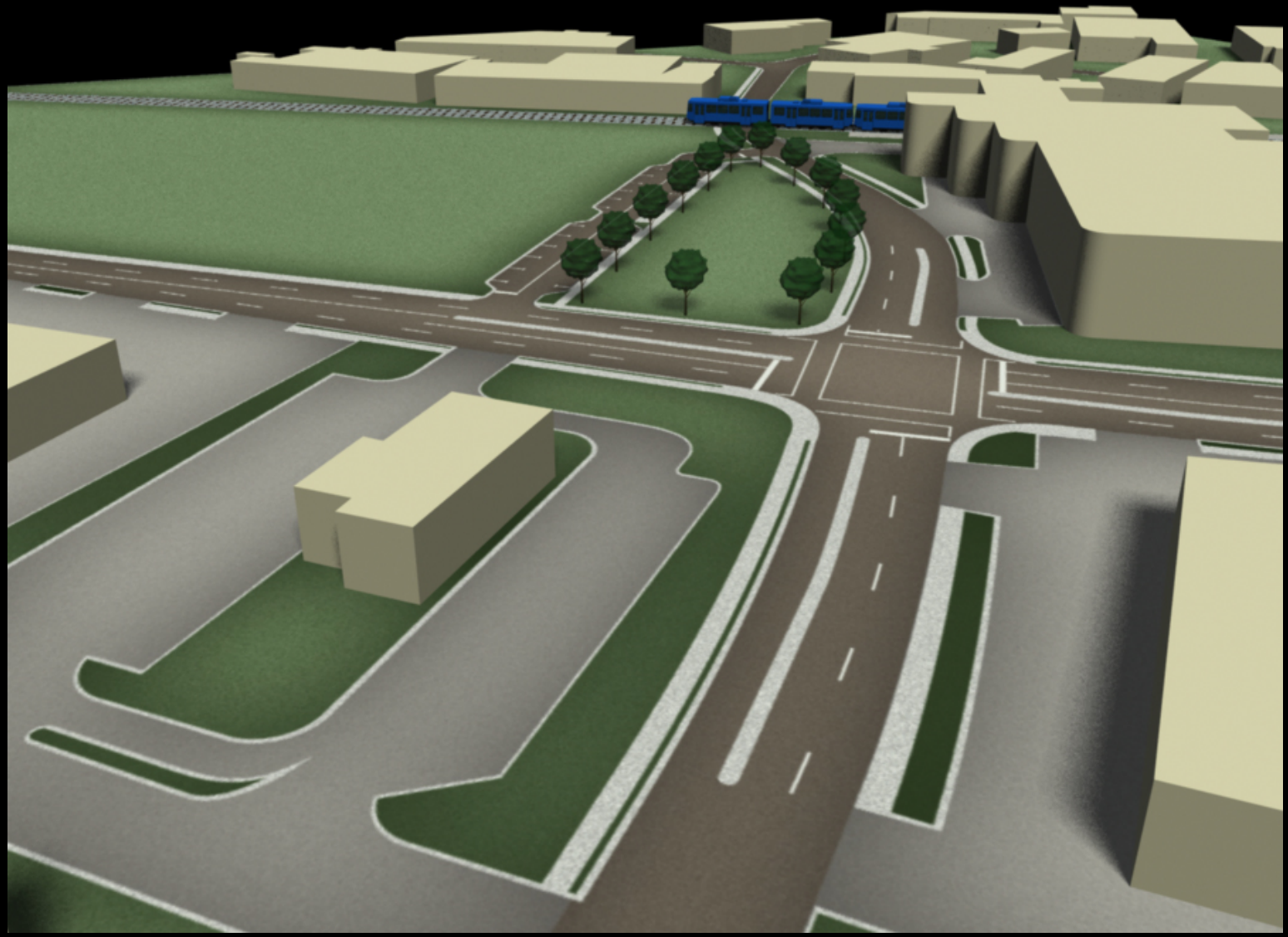
Great

Public Spaces

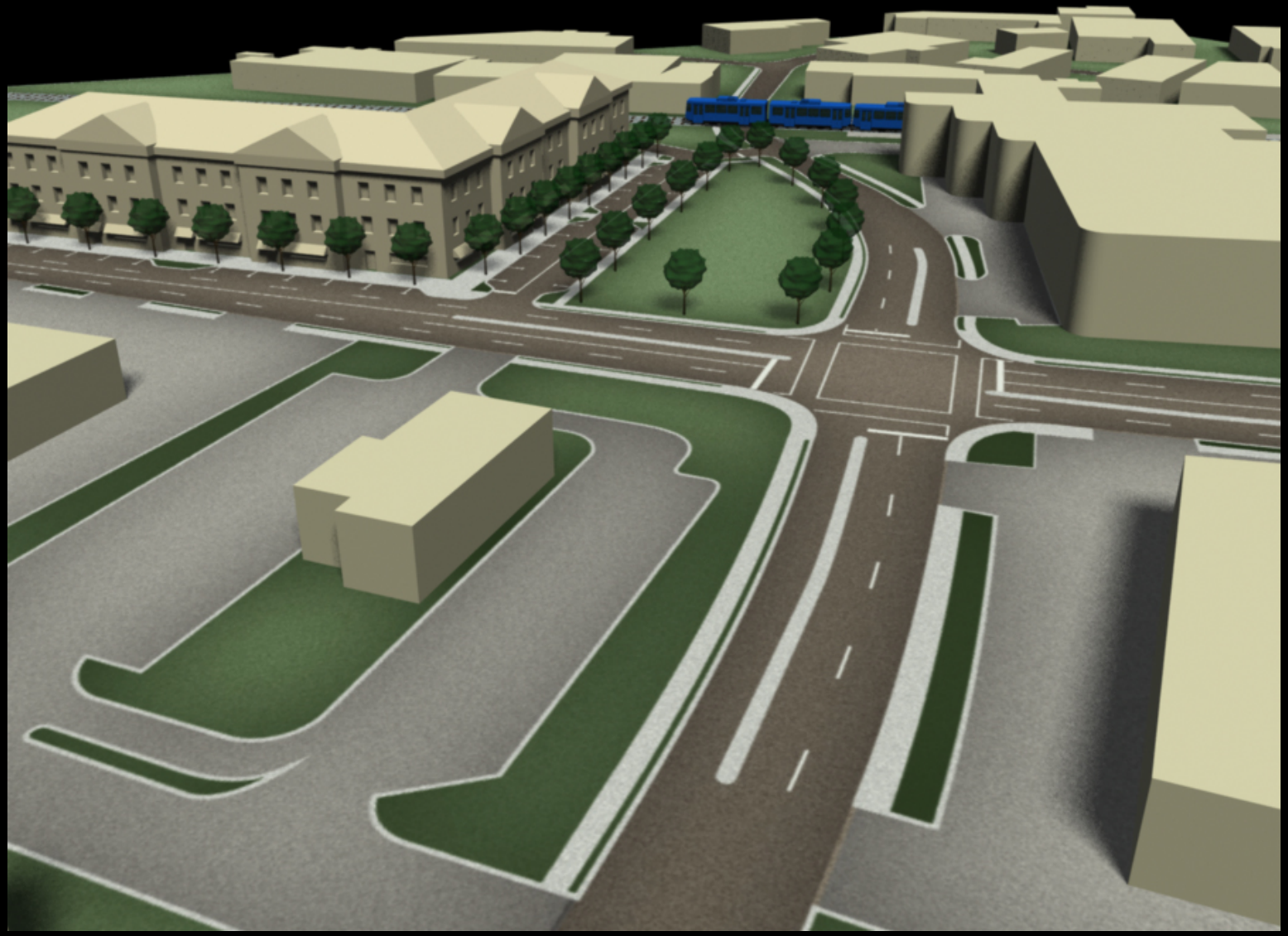
Organize the TOD around Public Spaces



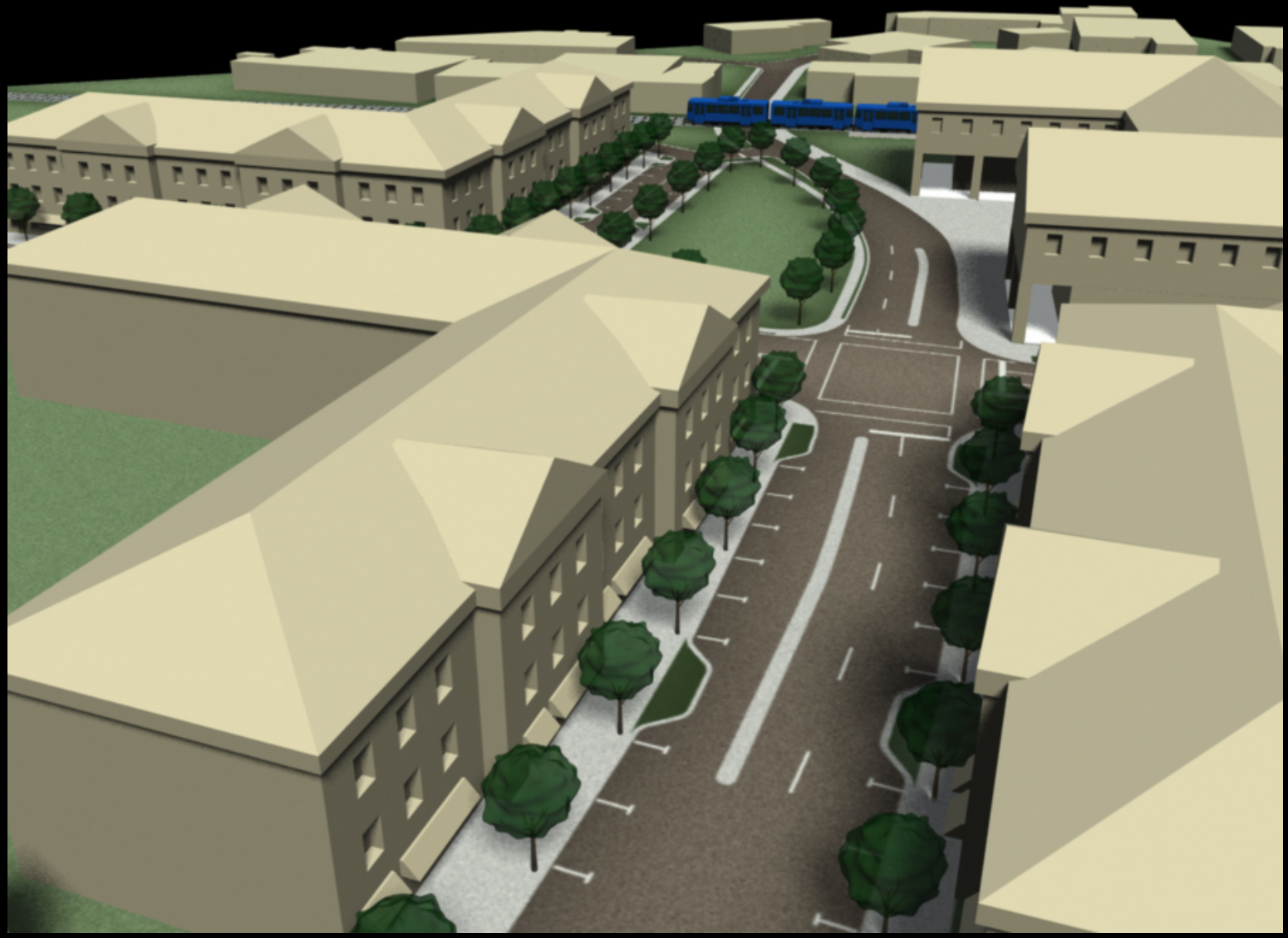
Organize the TOD around Public Spaces



Organize the TOD around Public Spaces



Organize the TOD around Public Spaces

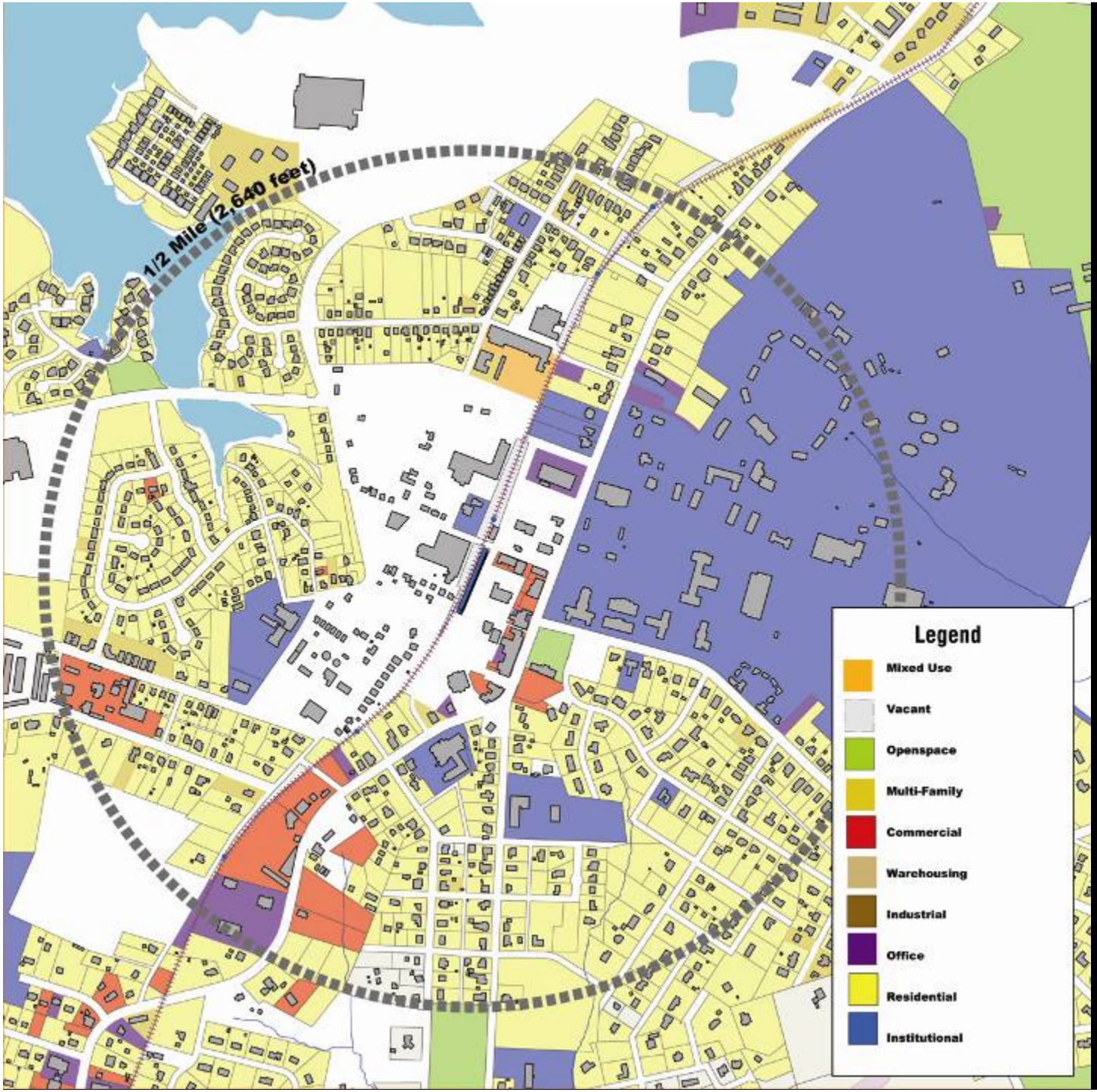


Organize the TOD around Public Spaces

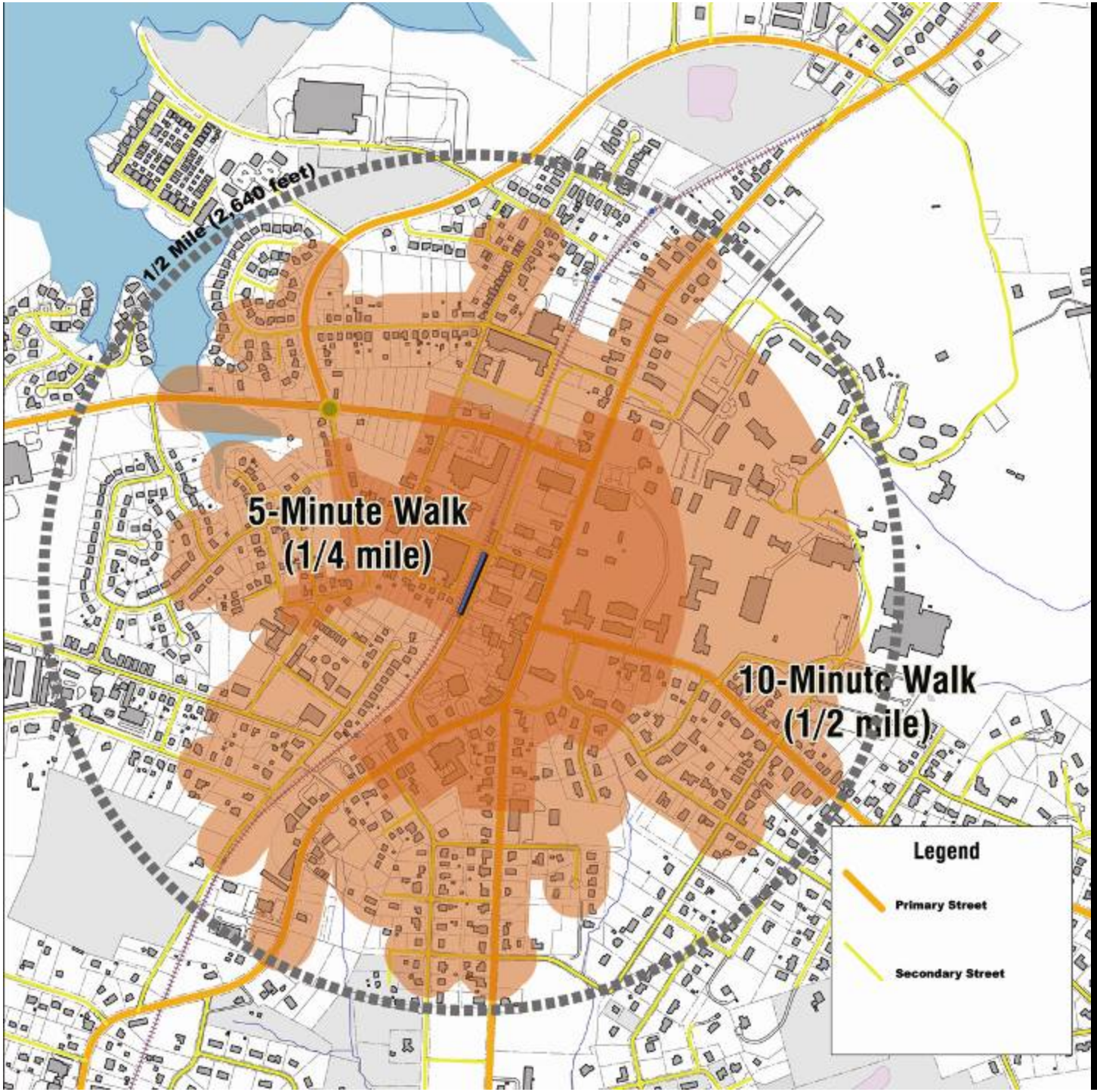
Land Use &

Development

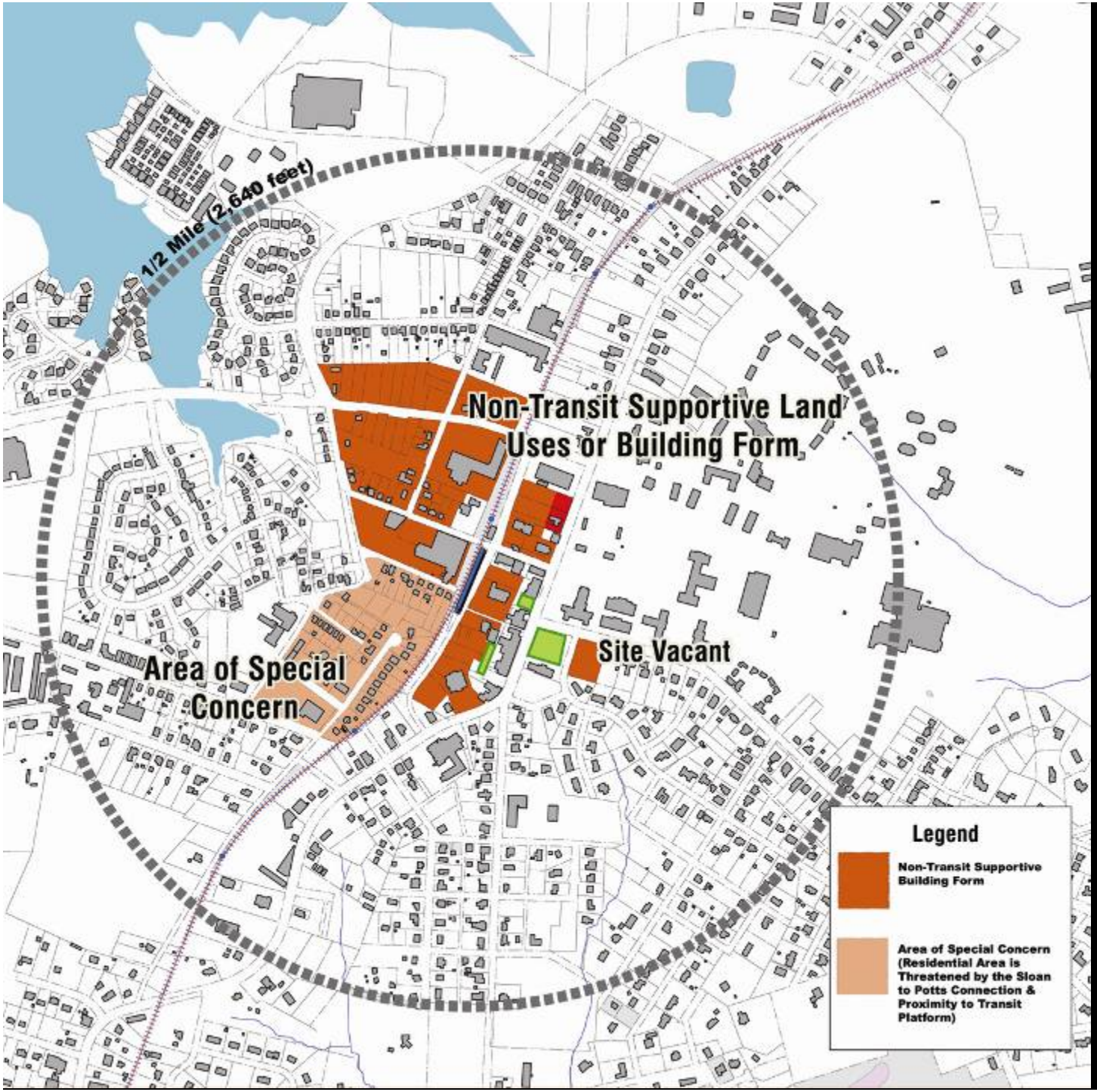
Transit Supportive Land Uses & Building Form



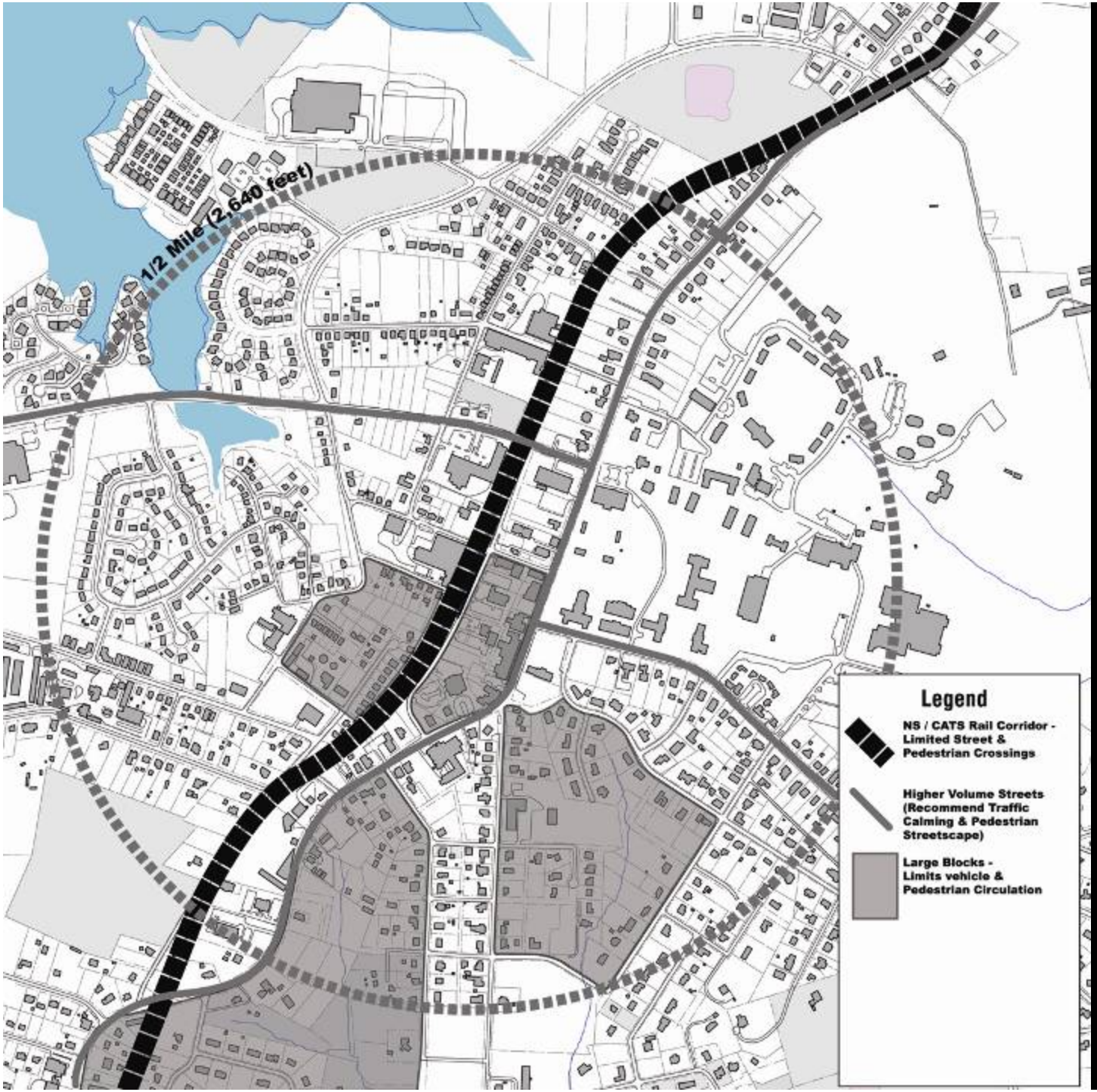
Walking Distance



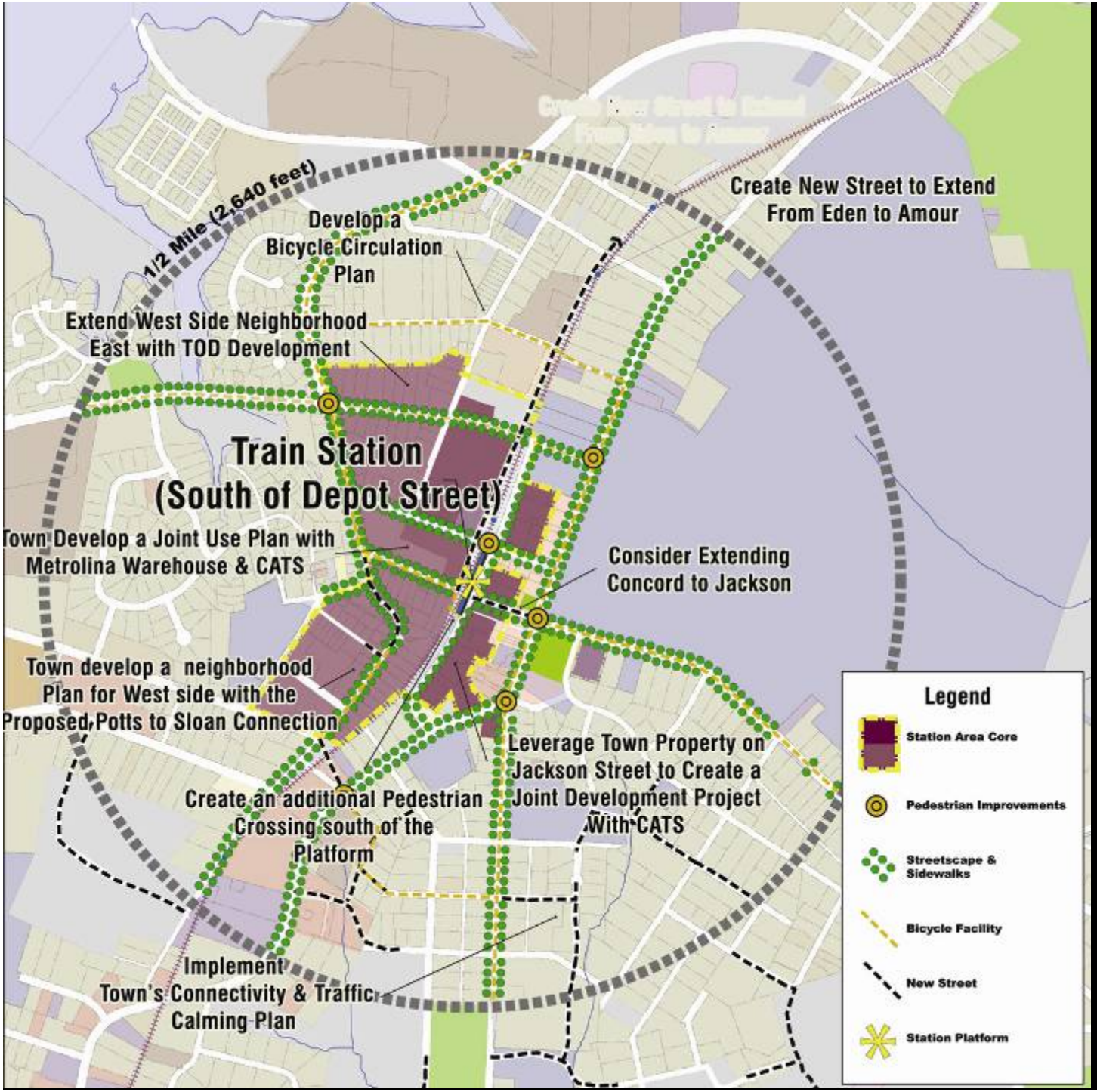
Non-Transit Supportive Land Uses & Building Form



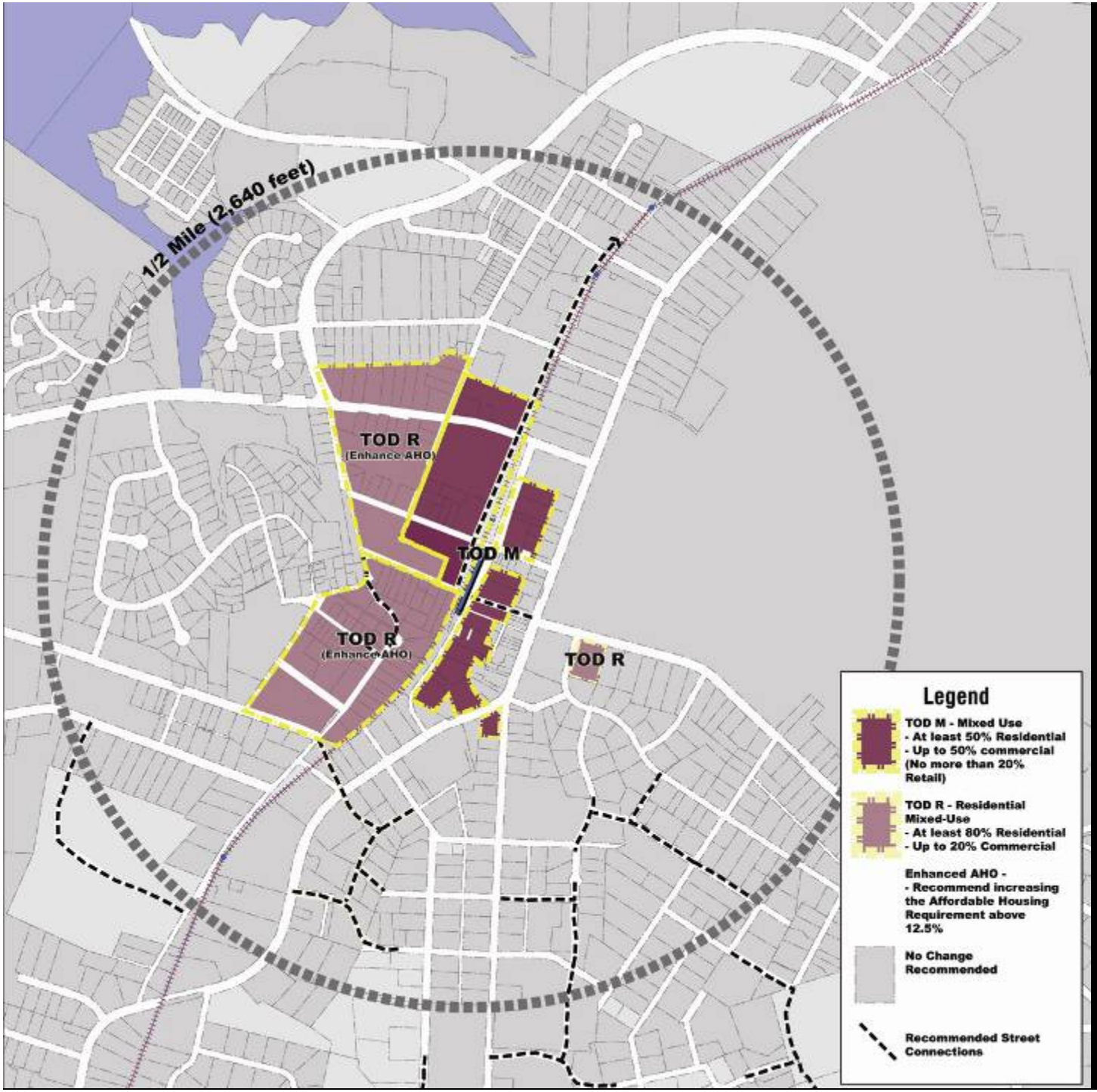
Barriers


1/2 Mile (2,640 feet)
Legend
NS / CATS Rail Corridor - Limited Street & Pedestrian Crossings
Higher Volume Streets (Recommend Traffic Calming & Pedestrian Streetscape)
Large Blocks - Limits vehicle & Pedestrian Circulation

Recommended Station Area Plan



Recommended Zoning Modifications



Redevelopment Opportunities

1. **Town Parking Lot**
   80k s.f. com/off.
   220 Res units
   +/- 400 parking (70 town, 125 CATS, + Dev.)

2. **Metrolina**
   25k s.f. com/off.
   400 Res units

3. **Sadler Square**
   30k s.f. com/off
   250 Res. units

4. **“Sadler” Property**
   20k s.f. com/off.
   200 res. Units

Totals:
+/- 155k s.f. com/off.
+/- 970 Residential units

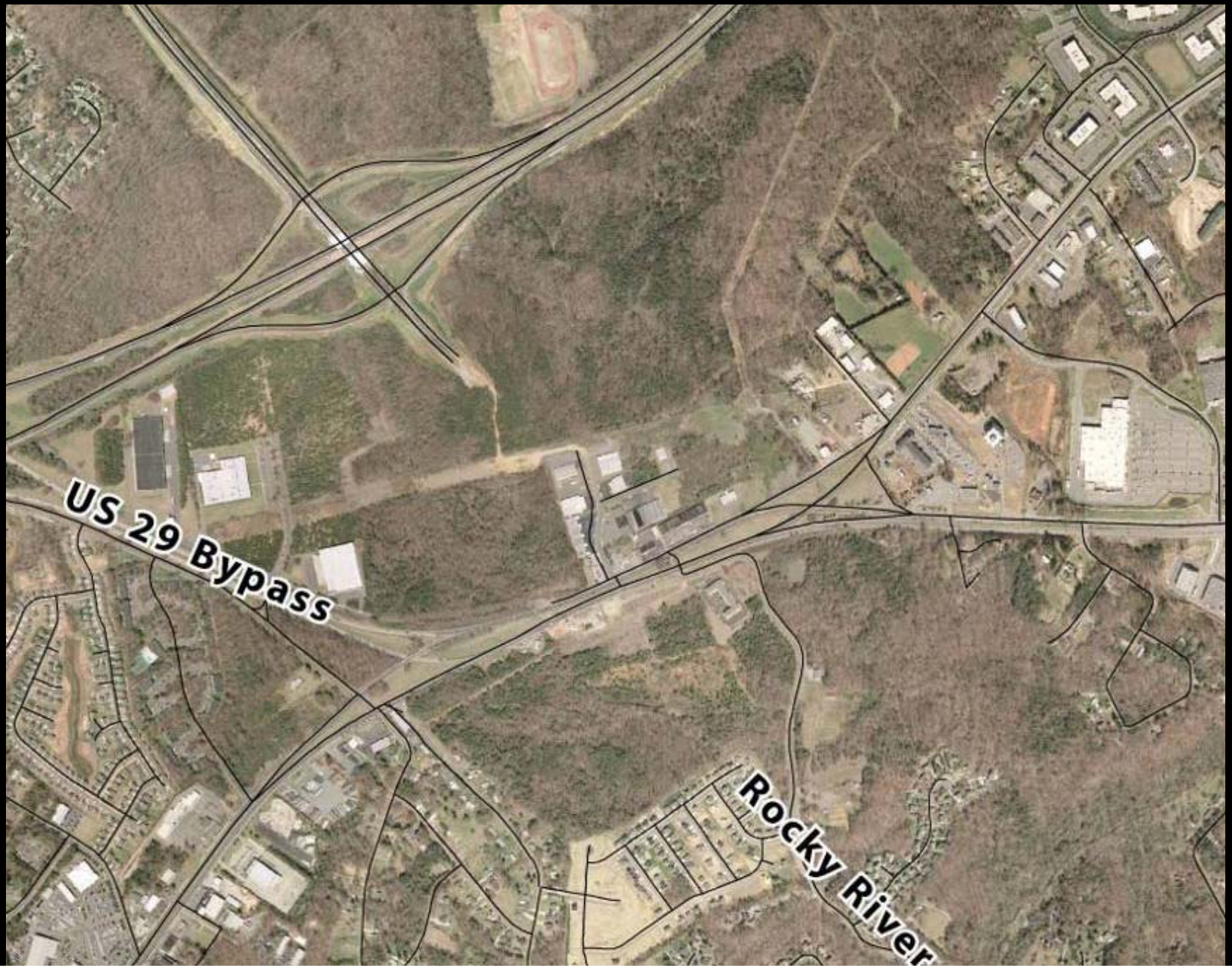
Northeast Corridor

Charlotte, USA

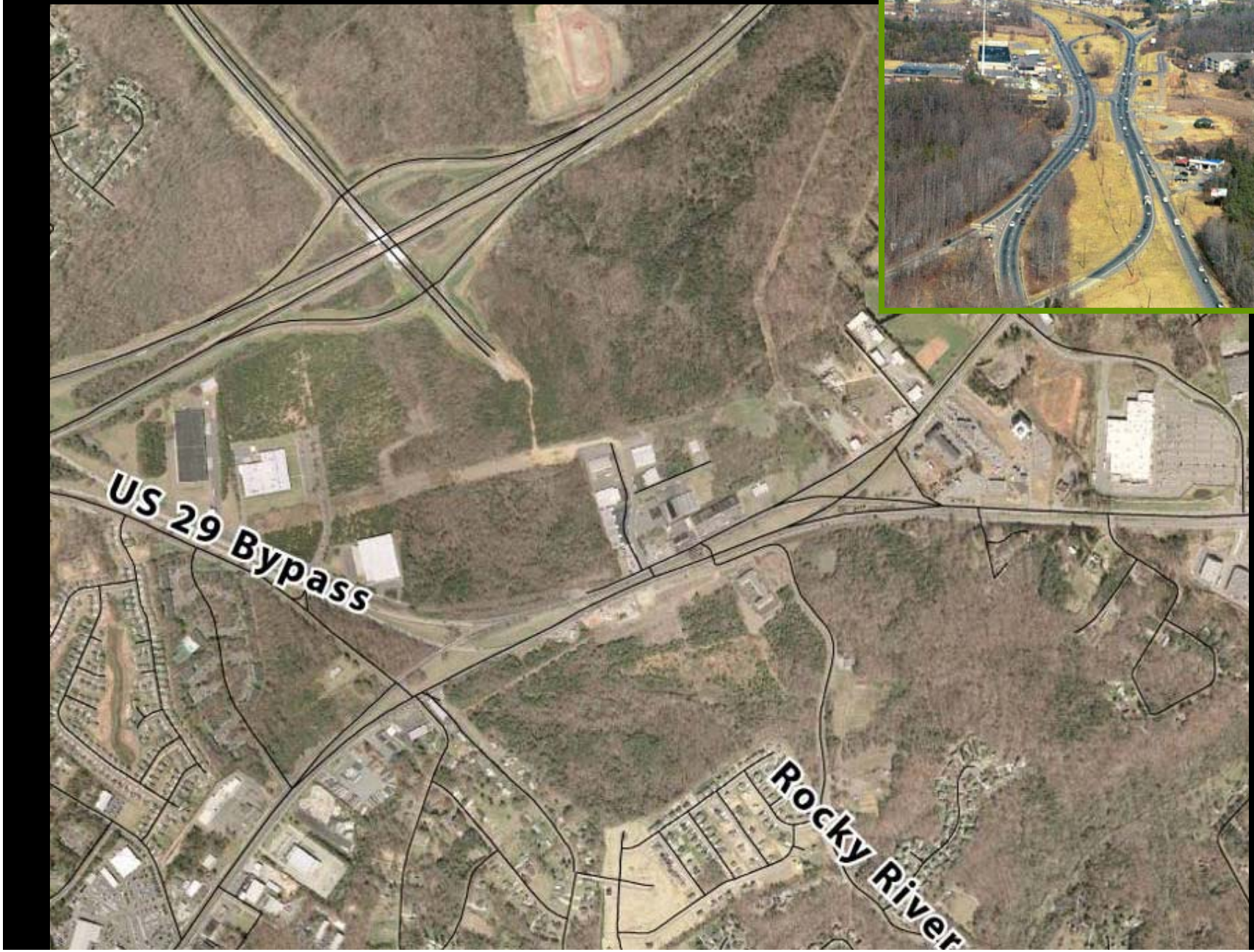

POSEIDON
ENTERPRISES


1847G.4 CHARLOTTE LIGHT RAIL.
PAUL TAYLOR
EVATTING.COM '10.2005

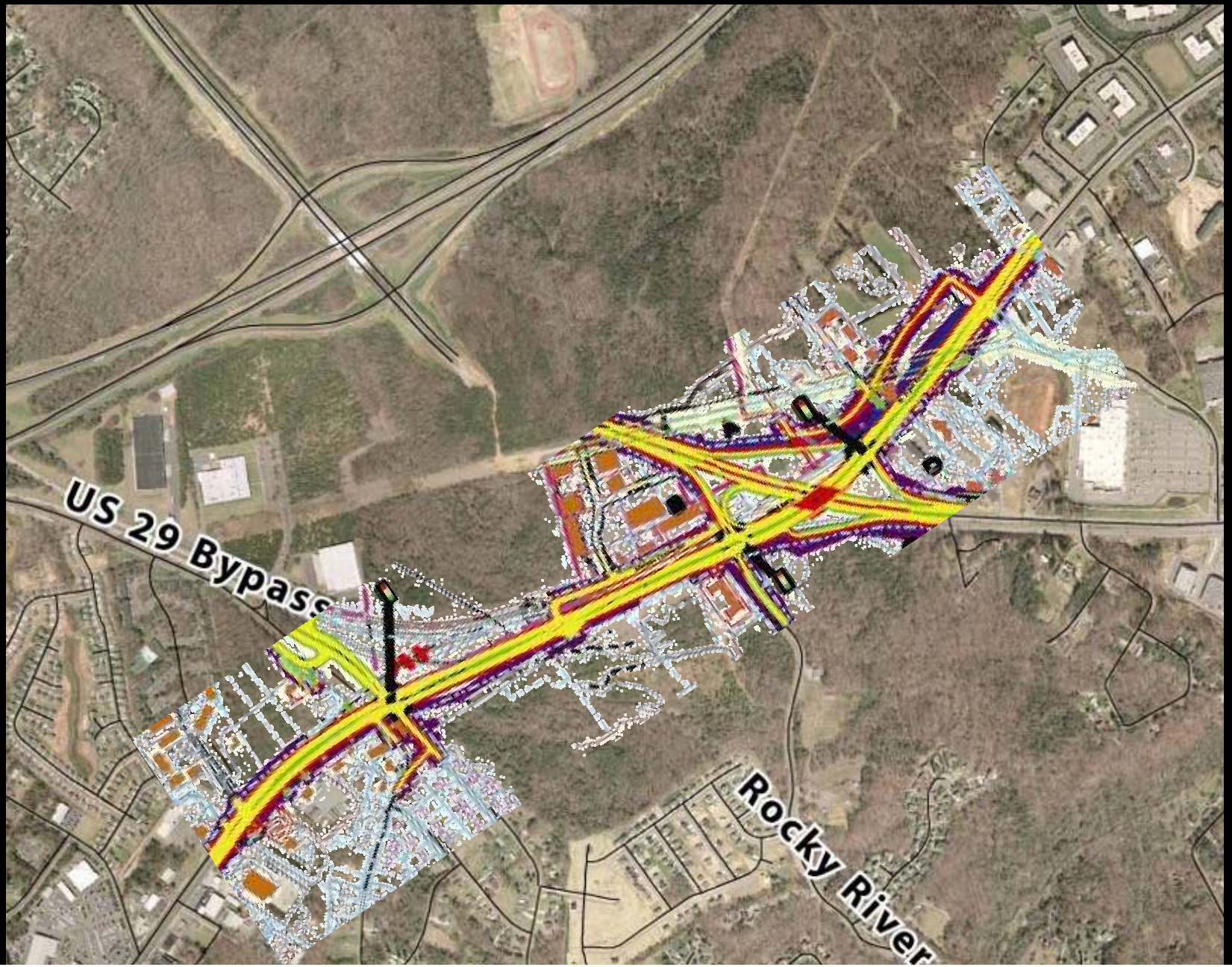
University City Area

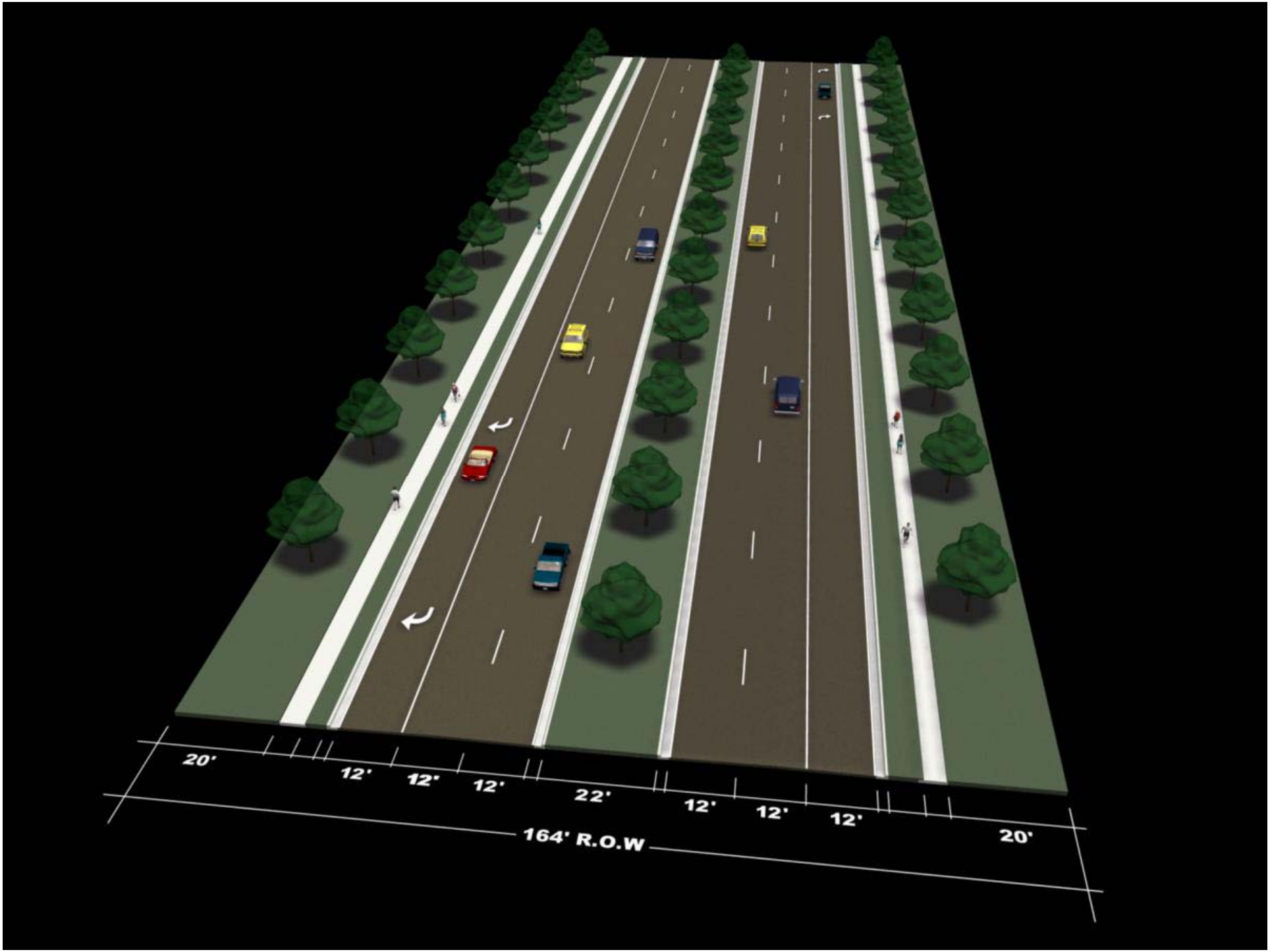


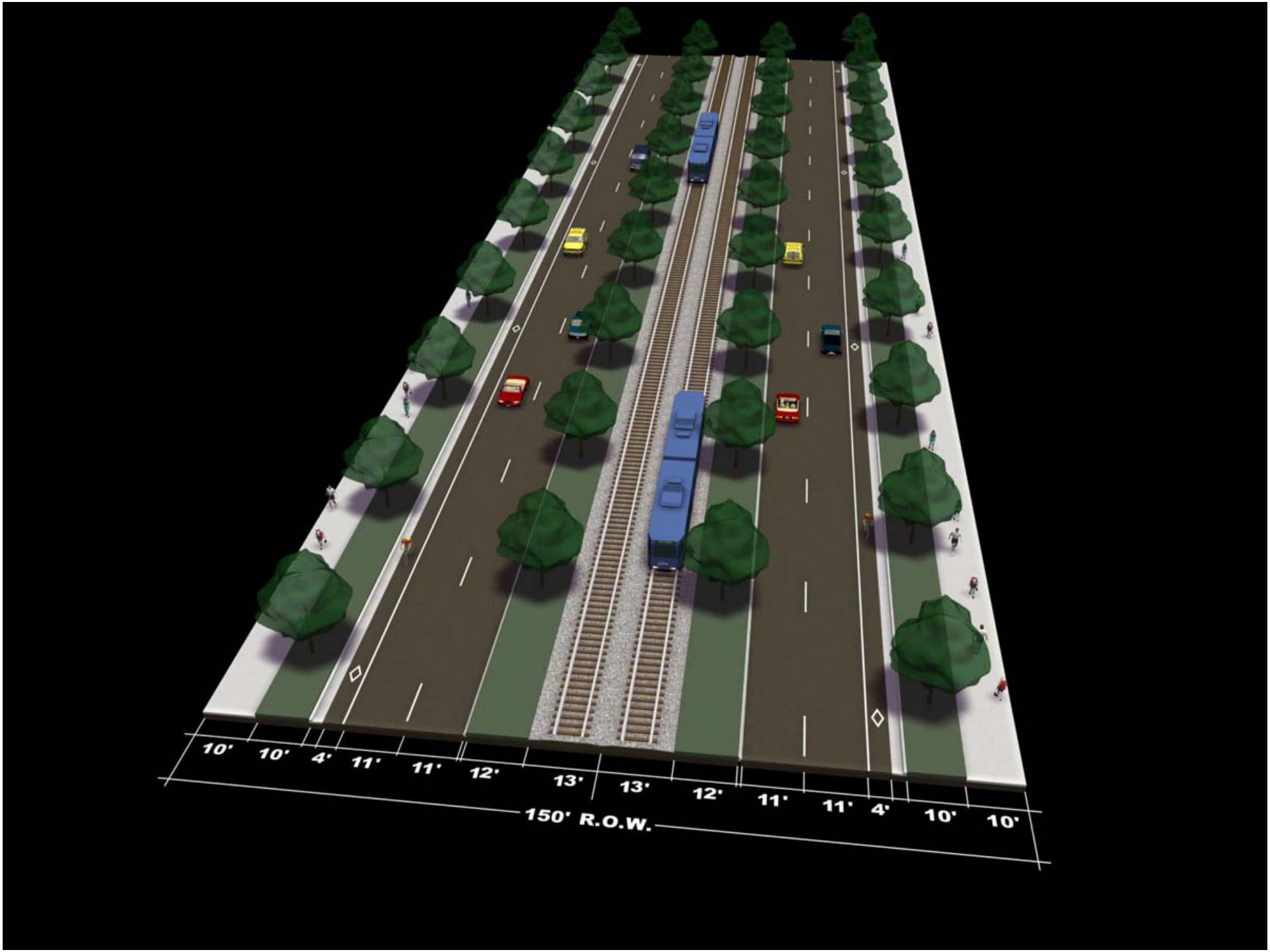
University City Area



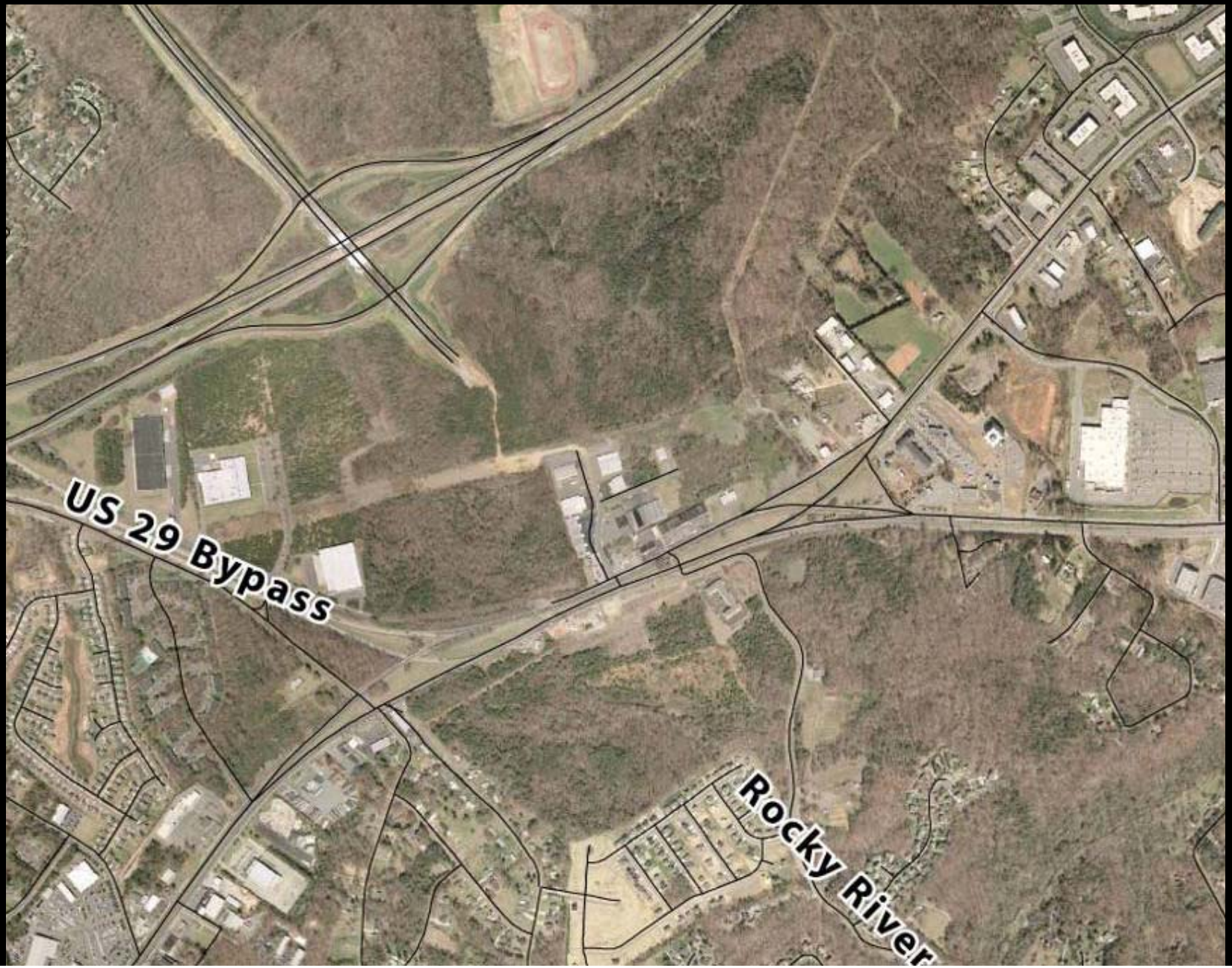
University City Area



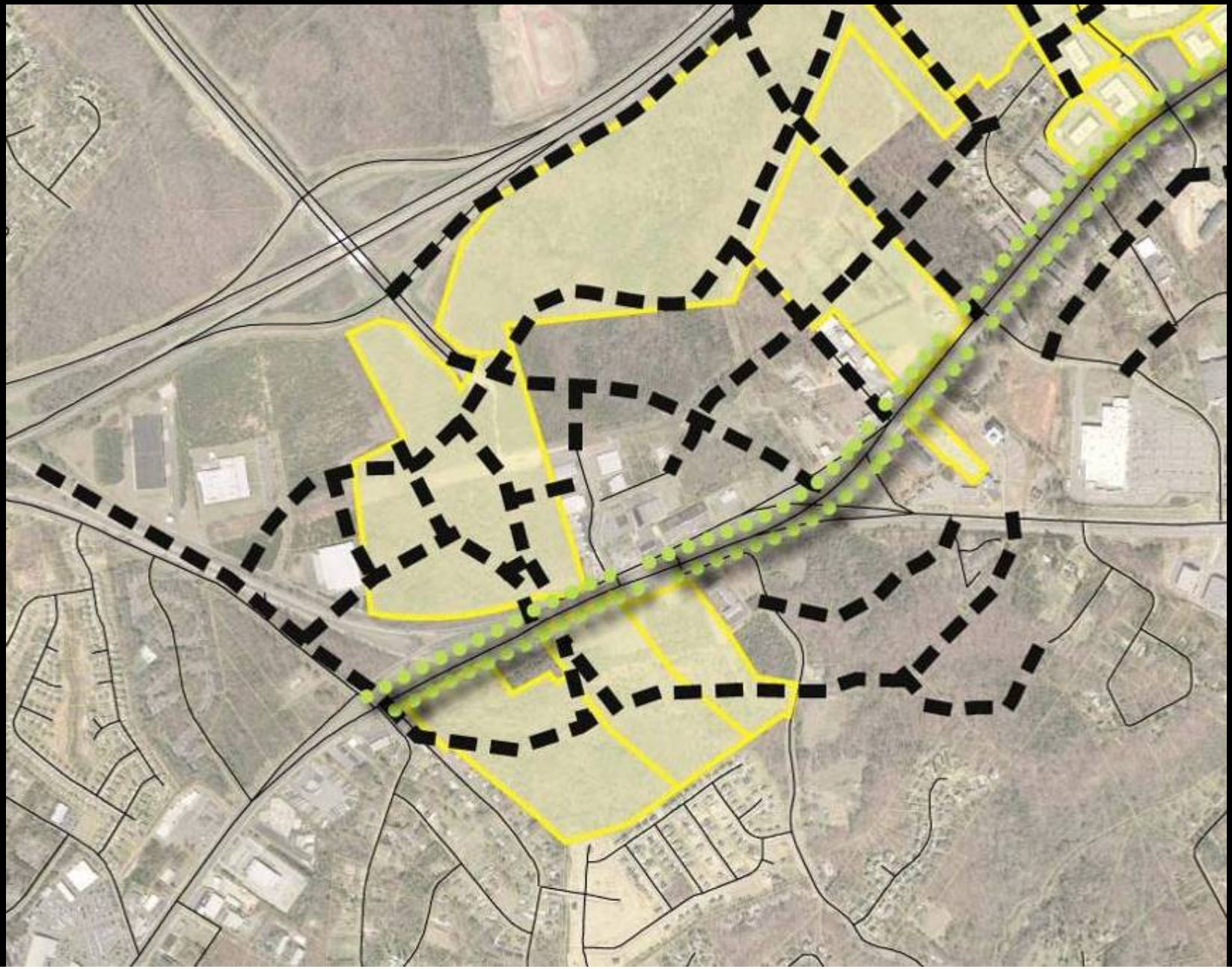

20'
12'
12'
12'
22'
12'
12'
12'
20'
164' R.O.W


10'
10'
4'
11'
11'
12'
13'
13'
12'
11'
11'
4'
10'
10'
150' R.O.W.

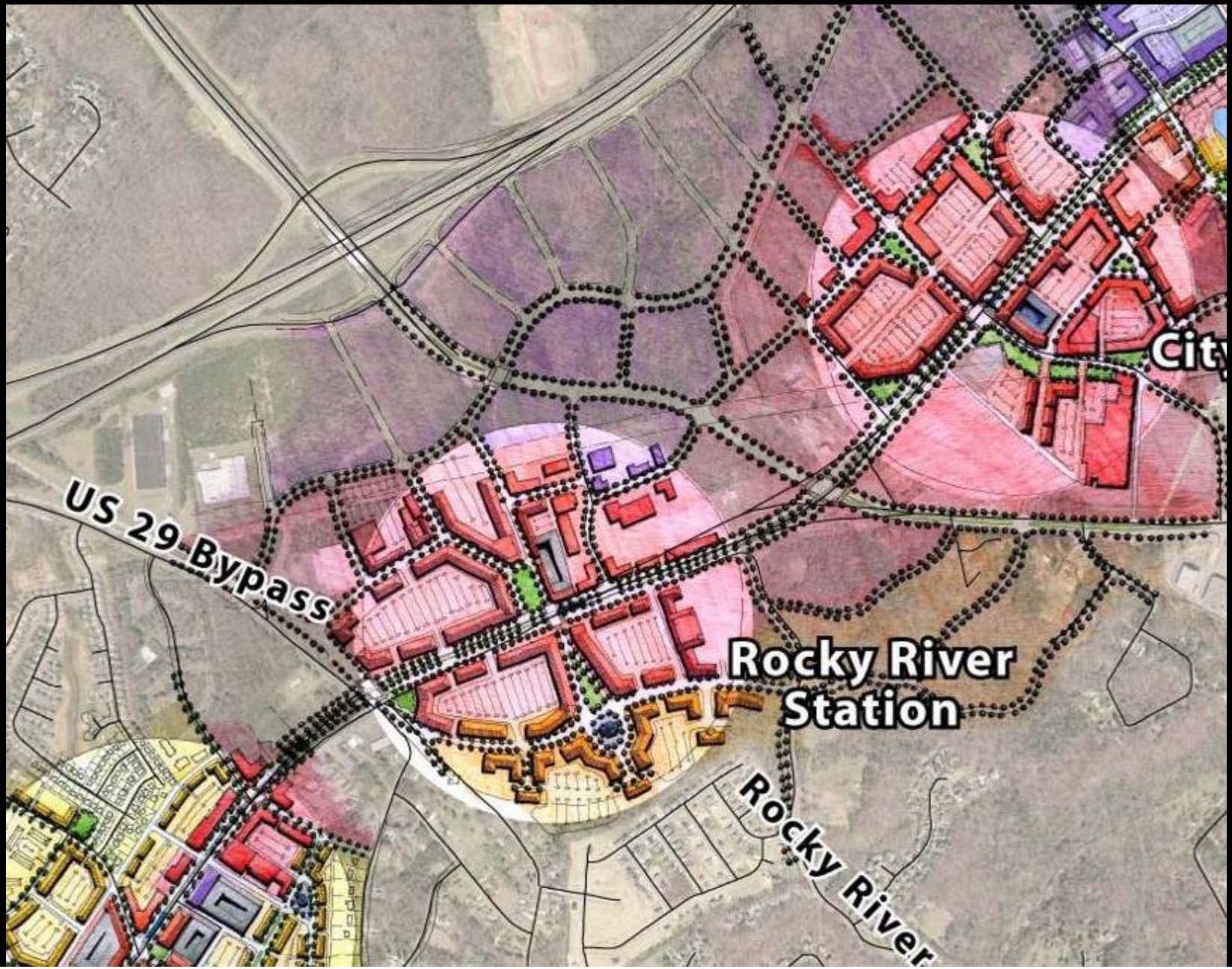
University City Area

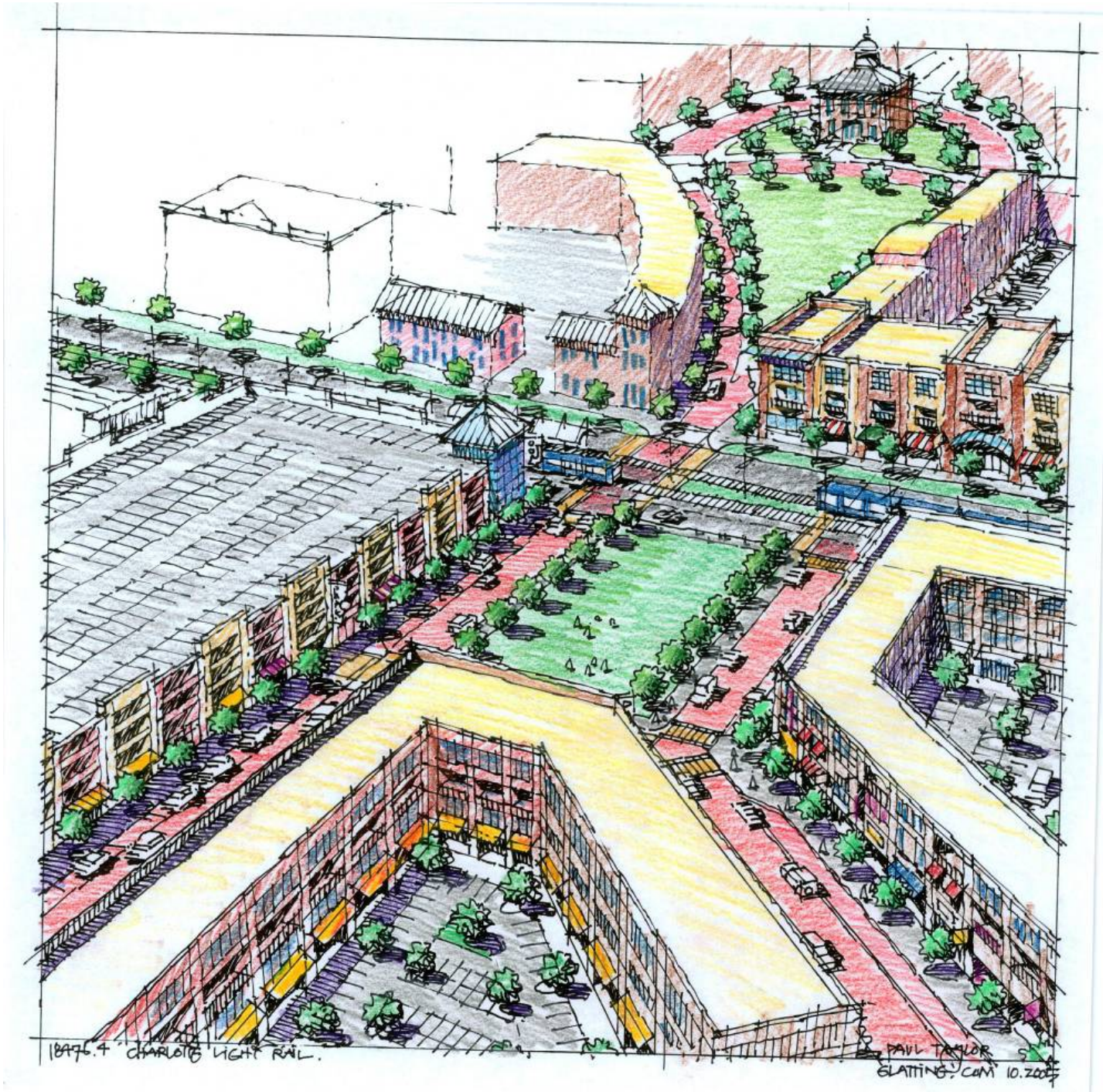


Potential for Privately-funded New Roads



NE Corridor Station Areas




1847.4 CHARLOTTE LIGHT RAIL.
PAUL TAYLOR
ELATTING.COM 10.2005

Implementation Partnerships

1) State DOT Commit to:
   - At-grade Intersection Solution
   - 4 lanes, not 6 lanes

2) Transit Commit to:
   - Build Urban Boulevard
   - Rocky River Station

3) MSD Commit to:
   - Additional Capital for Urban Boulevard
   - Maintain Landscape

4) City Commit to:
   - Street Network Requirements
   - TOD Zoning Ordinance
   - Pedestrian Oriented Design Guidelines

5) Land Owners Commit to:
   - Build Local Street Network
   - Minimum of 50 Units / Acre


Chinat
N
Fis
DO NOT
ENTER


FOLSOM &
← FOLSOM ST.
THE EMBARCADERO
HARRISON ST. →